

Welcome to LUSoM

Based in the heart of Preston, LUSoM (Lancaster University School of Mathematics) is one of the country's few specialist maths schools, formed by a collaboration between Lancaster University and Cardinal Newman College, designed specifically for students with an exceptional aptitude and passion for mathematics.

Thank you for considering LUSoM for your A-levels, and for taking time to read this prospectus.

Our brand new, purpose-built campus opened in September 2022, is a thing of excellence! The facilities and the curriculum have all been designed to support the brightest and most talented maths pupils from across Lancashire – whatever their background – bridging their transition from school to undergraduate studies.

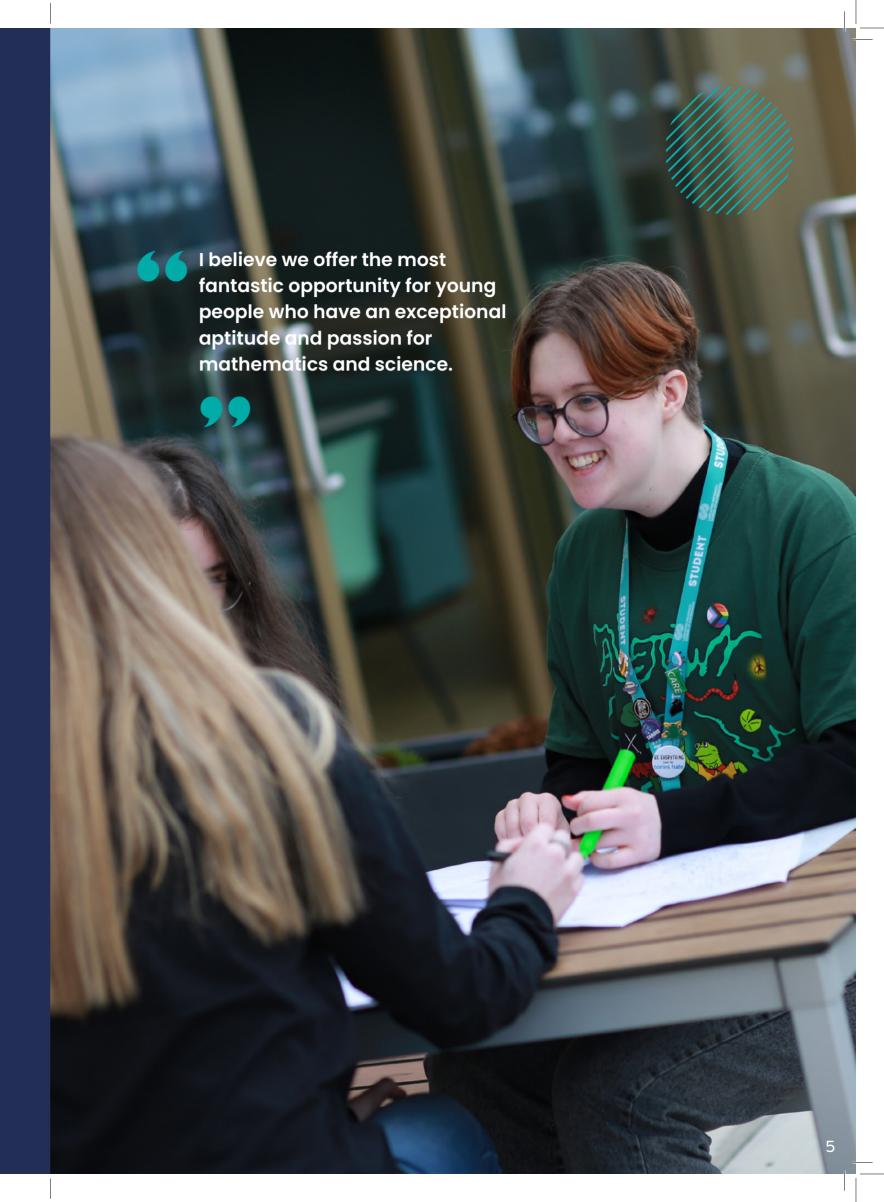
I believe we offer the most fantastic opportunity for young people who have an exceptional aptitude and passion for mathematics and science. By bringing together a small, like-minded community of students and staff who all have an interest in furthering their understanding of the

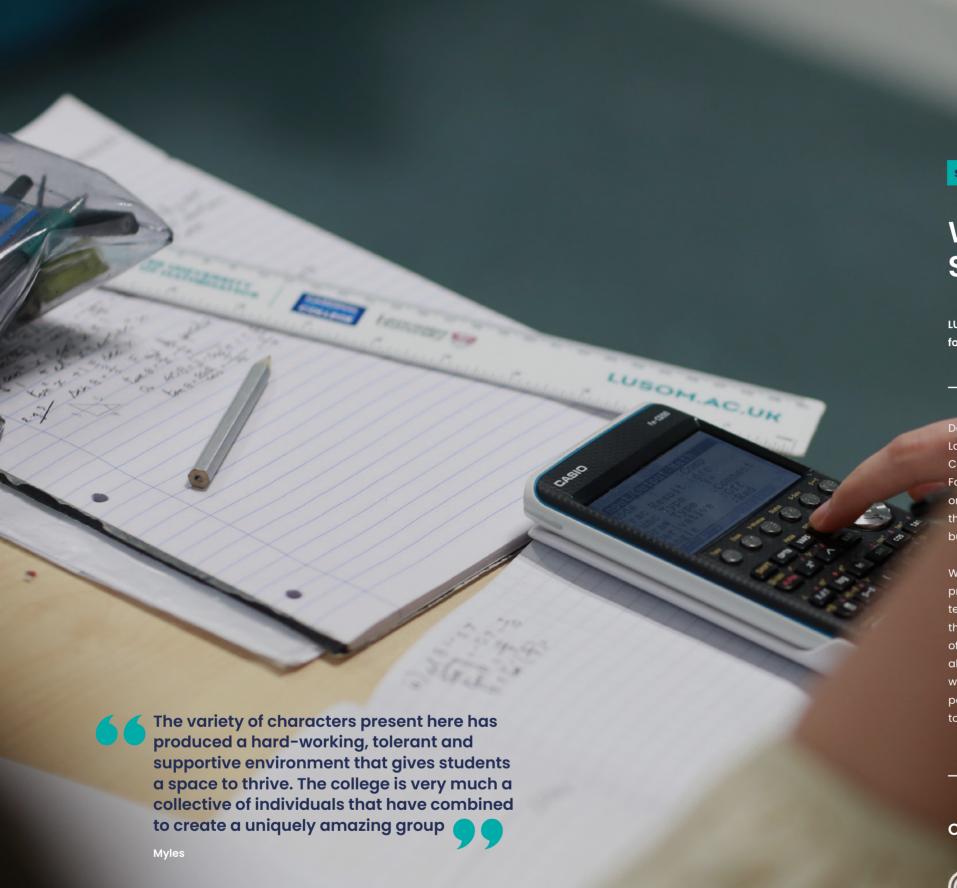
world, there is an atmosphere and a buzz generated which releases the potential in everyone. With our exceptional teaching, world-class facilities, and links with one of the top universities in the country, our students leave not only with top grades, but also well prepared for further study, having gone above and beyond the standard A-Level curriculum.

We look forward to welcoming you on a visit to our brand-new building, to meet our exceptionally gifted staff, and most of all speak to our wonderful students. We hope you will join us on an incredibly exciting journey through an exploration of mathematics and all its uses.



Peter Tiltman
Head of School
LUSOM (Lancaster School of
Mathematics)





SECTION 2 – What is LUSoM?

What is Lancaster University School of Mathematics?

LUSoM (Lancaster University School of Mathematics) is a specialist maths sixth form college located in the heart of Preston.

Developed in a collaboration between Lancaster University and Cardinal Newman College – one of the highest– performing Sixth Form Colleges in the country – LUSOM is one of only a handful of dedicated maths schools in the UK, and boasts the first and only purposebuilt campus in the country.

We are a distinct and unique specialist provider of outstanding mathematics teaching for students wanting to immerse themselves in a small, close-knit community of like-minded scholars. Our school welcomes all students with a passion for maths – whatever their background – unlocking their potential and setting them on their way towards successful STEM careers.

With our exceptional teaching, purposebuilt learning environment, and specialist resources with undergraduate-level content, our aim is to ensure young mathematicians thrive throughout their two years with us, and beyond.

LUSoM Partners

LUSOM is part of the Rigby Education Trust, sponsored by Lancaster University and partnered with Cardinal Newman College. It is a designated Maths School, as supported by the Department for Education (DfE), with an extensive outreach programme supporting maths education in surrounding high schools

Our partners









SECTION 3 – What makes us different?

Going beyond A-level Mathematics for talented 16-19 year olds.

For some school pupils, being naturally gifted in maths and science subjects can set them apart for the wrong reasons. A specialist Maths School brings together these talented individuals and creates a vibrant community where they are actively encouraged to explore the subjects they love.

LUSoM offers gifted young people in the North West access to world-class preparation for entry into mathematics-based university education, at a standard which is unavailable within the mainstream state school system. Our mission is to enable the most able mathematicians from all backgrounds to realise their potential within an inspiring, inclusive, and supportive learning community.

What makes us different?

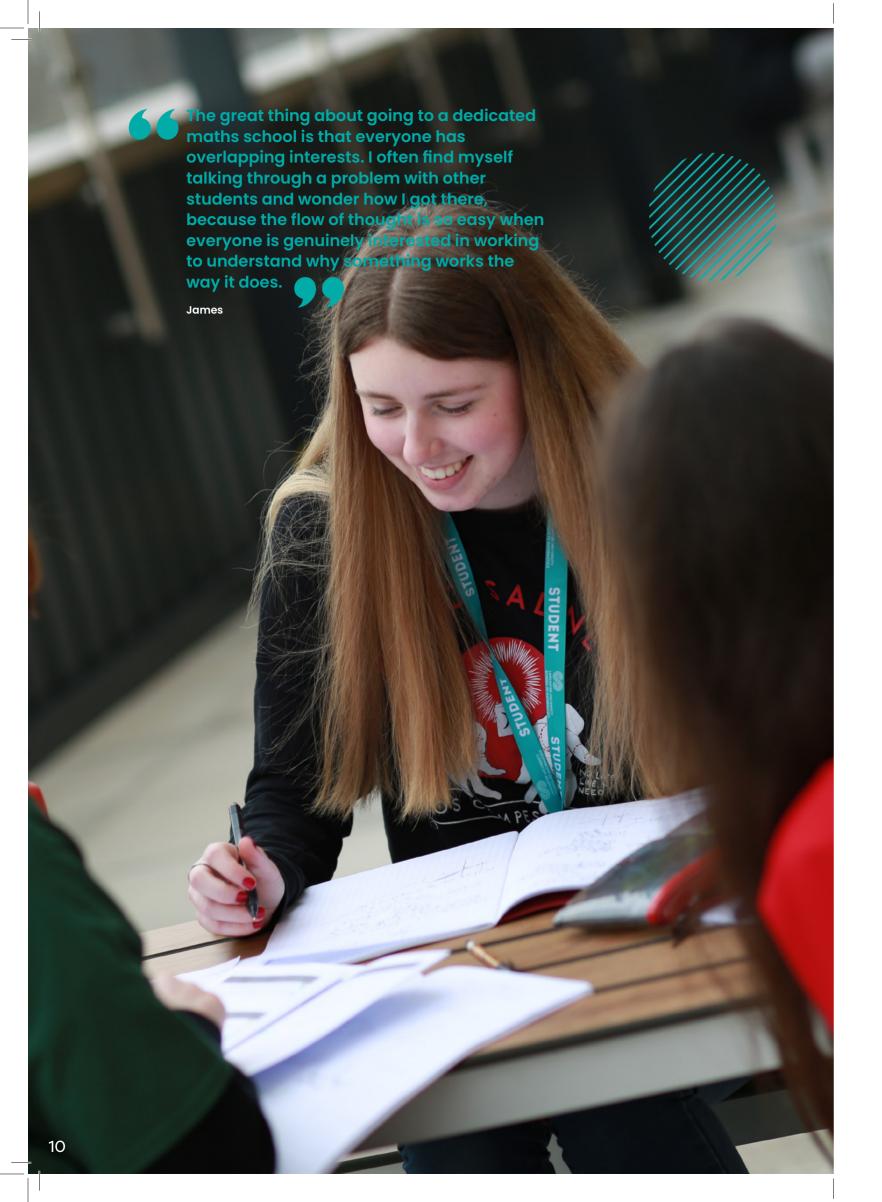
The curriculum is extended beyond the standard Mathematics A-Level to provide a stretching and inspiring education delivered by LUSoM staff and academics.

Our curriculum blends classroom teaching with opportunities to network and learn from industry experts and spend time at Lancaster University getting a feel for university level mathematics.

We offer an extensive programme of maths-based extension and enrichment activities, alongside other non-academic enrichment offered in partnership with Cardinal Newman College. Students will be guided towards progressing onto degree courses within a mathematics or STEM-related subject area and there will be a wide programme of residentials and specialist events.







SECTION 4 – Our Curriculum

Specialist Maths & STEM Curriculum

Our curriculum is designed to push the boundaries of A-Level Mathematics for talented 16-19 year olds with a passion for maths and STEM subjects.

Taught by specialist staff in brand new, purpose-built facilities, you will study
A-Levels in Mathematics and Further
Mathematics, and then choose your third
A-Level from the subjects taught at LUSOM and can then select a 4th A-Level from either the LUSOM programme or at our sister college, Cardinal Newman.

LUSoM Teaching Ethos

Due to the advanced aptitude of the students in our classes, and the shared curriculum of Maths and Further Maths A-level, there is a different feel to the teaching and learning when compared to classes where there is a greater mix of abilities.

There is a large amount of content delivered in the lessons, going in-depth and bringing in the historical context of the mathematics that we are learning. The aim is to go well above and beyond the specification, exploring different uses of mathematics as well as just the theory.

We want to train our students to become truly independent learners in preparation for university and further study. To this end, routine consolidation is done outside the classroom, and inside is a focus on more challenging or problem-solving questions.

As part of their curriculum, students are expected to work collaboratively with guidance from a mentor and research a project, developing the skills and learning the standards required of academic research.

As a small school, we can quickly build strong relationships which means that students can come to us for support or to ask us advice on university applications, or to seek our opinion on a book or journal they have read. The timetable allows us to schedule targeted small group sessions, either to go through and consolidate work done in class, or to provide extension or preparation for university exams.

A place at Lancaster University

Students who attend and successfully complete their studies at Lancaster University School of Mathematics will be guaranteed an offer for nominated degree programmes at Lancaster University, provided they meet the entry requirements.

A-Level Mathematics & Further Mathematics

A-Level Mathematics and A-Level Further Mathematics are mandatory subjects at LUSoM.

If you thoroughly enjoy the subject and are keen to extend your understanding and knowledge, then these courses will provide the chance to study some more demanding and abstract concepts that will set you up for higher education and careers in STEM.

As all LUSOM students are required to study both Maths and Further Maths, we are able to treat the two subjects as one. This gives us the advantage of dipping in and out of the different syllabi, teaching the topics in an order which makes sense and builds naturally. By allowing students to first develop a firm grasp of the fundamentals, they can develop a greater understanding of more complex mathematical concepts, thus setting them up for a greater chance of success.

Course Curriculum:

Our maths course covers much more than the standard A-Level material. We teach with rigour, developing insight, and focussing on a depth of understanding whilst showing the wide range of applications that maths can have. We challenge our students to reason formally, connect ideas, solve challenging problems, and compose and examine mathematical proofs.

You will be tested in many ways – you won't just be sat in a classroom at LUSoM. Our curriculum blends classroom teaching with opportunities to network and learn from industry experts, as well as spend time at Lancaster University getting a feel for university level mathematics.

Our aim is not only to prepare students thoroughly for their A-Level examinations, but to give an appreciation of the connection between the different disciplines. Developing our students' formal analytical skills, their communication abilities through presentations, and a broad programme of enrichment. The goal is to lead to students who can cope easily with higher education and have a real understanding of the importance of mathematics.

Future Opportunities:

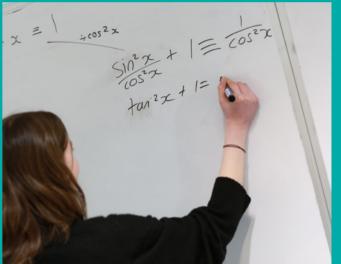
Maths and Further Maths A-Levels are sought-after qualifications, well regarded by all universities and employers. The skills gained are easily transferred to many higher education courses as well as future careers. Many prestigious universities require students to have studied A Level Further Maths to be accepted onto courses such as Engineering, Physics or Computer Science. By not studying Further Maths, many students are putting themselves at a disadvantage when going on to higher education.

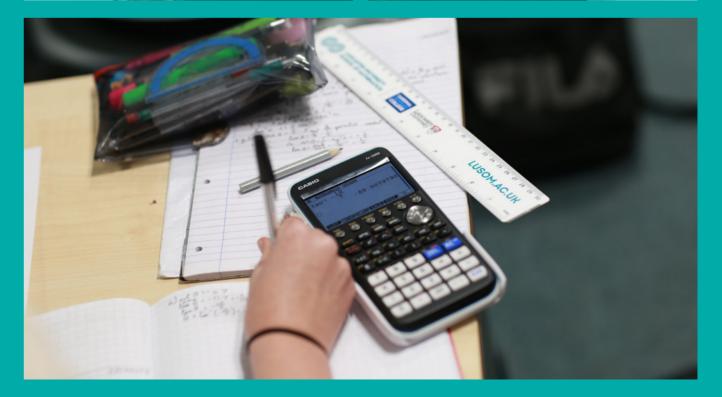
Entry Requirements:

Grade 8 or above at GCSE Mathematics.









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A-Level Chemistry

SECTION 6 - Optional A-Levels at LUSoM

Chemistry helps us to understand materials, explain properties and observations and to develop problem-solving skills. Using Chemistry we can live more sustainably, contributing to the development of renewable and low carbon energy sources. Synthesis of organic molecules can help us to develop pharmaceuticals to improve human health in a changing world.

Course Curriculum:

You will study the foundations of chemistry, the periodic table, organic chemistry such as hydrocarbons, alcohols and polymers and physical chemistry such as reaction rates, pH and enthalpy, all the while developing your practical skills.

Future Opportunities:

Studying A-Level Chemistry is a route to some fantastic career opportunities in the areas of Science, Medicine, and Engineering. In addition to studying a Chemistry degree, Chemistry A-Level allows you to progress onto

university to study courses such as Pharmacy,
Medicine, Veterinary Science, Dentistry,
Chemical Engineering, Forensic Science
and Environmental Science to name a few.
The analytical, mathematical, investigative,
research, decision making and problemsolving skills developed by studying Chemistry
are highly transferable skills and sought by a
range of employers.

Entry Requirements:

A Grade 7 in Chemistry GCSE or at Dual Award.

A-Level Computer Science

Computing is fundamental to almost all areas of modern life. Recent studies in the US predict out of all Science, Technology, Engineering and Maths (STEM) jobs forecast for the next two years the vast majority of them will be in Computer Science. The Videogames industry is now bigger than the Movie and Music industry combined.

Course Curriculum:

Our Computer Science A-Level course is designed to offer you a solid foundation across this subject. It will help you develop the knowledge and skills required to meet the demands of the many careers available to you, such as a Programmer, Systems Analyst and Games Designer. If you enjoy problemsolving and meeting challenges, creating programs from scratch (including games), then Computer Science is the right course for you.

One of the most enjoyable parts of the course for students is the year-long project which will run across both years of your course. This is a program you create from scratch and can be anything from a Unity Game, VR system, App Development, Robotics, or any other technical topic you might have an interest in. You will learn the C# Programming Language from scratch, and we will also teach you games design within a games engine called MonoGame. You will also study the theory of Computer Science.

Future Opportunities:

Many of our learners go on to study
Computer Science, Software Engineering or
Games Development at higher education.
Additionally, others may choose degree
apprenticeship routes or go into employment
in the technology industry.

Entry Requirements:

A Grade 7 in Computer Science GCSE (if taken). For those without a Computer Science GCSE, experience programming is a must.



Lancaster University School of

Mathematics Courses



A-Level Physics

Physics is both every day and extraordinary, from explaining why the sky is blue, to understanding quantum theory and Einstein's relativity. A-Level Physics combines practical investigations and experiments with theoretical ideas, giving you the skills to logically analyse and solve problems; skills that can be applied to any scientific or mathematical challenge.

Course Curriculum:

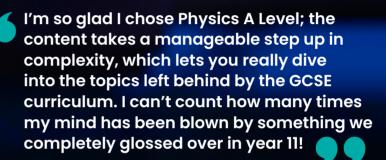
The A-Level Physics course covers a wide range of topics in Physics, including Mechanics, Waves, Quantum Physics, Electricity, Particle Physics and Nuclear Physics.

Future Opportunities:

A-Level Physics is highly regarded by employers and universities. Students can go on to study a wide range of courses including Astrophysics, Cosmology, Aeronautical, Motorsport or Acoustic Engineering, Medical Physics, Architecture, Pilot studies and Computing.

Entry Requirements:

A Grade 7 in Physics GCSE or at Dual Award.



Megan

SECTION 7- Optional A-Levels at Cardinal Newman

A-Level Biology

A-Level Courses

Cardinal Newman

The A-Level Biology course is a natural science concerned with the study of life and living organisms, including their structure, function, growth, evolution, distribution, identification, and taxonomy. It is an exciting and rapidly advancing science. Biologists are making an increasing contribution to ensuring the world becomes a healthier and safer place.

Course Curriculum:

From biological molecules to cells and genetic information, the inner workings of biological beings are studied as well as how organisms interact and respond to their environments.

From the micro to the macro including populations and ecosystems, the whole of life is studied at A-level.

Future Opportunities:

Studying Biology will provide you with an excellent opportunity to develop skills that will transfer to a wide range of careers. At university, you can go on to study science-related degree courses. These courses include Biochemistry, Conservation, Dentistry, Ecology, Marine Biology, Medicine, Neuroscience, Nursing, Optometry, Pharmacy, Physiotherapy, Podiatry, Sports Science, Veterinary Science, and many more.

Entry Requirements:

At least a Grade 6 in two Sciences and Grade 5 in English Language.



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A-Level Business Studies

A-Level Business Studies lifts the lid on business organisations and investigates what makes them tick. Functions such as marketing, human resources, product development and finance all must work closely together in order to achieve the aims and objectives of the business. You will also look at influences outside of the business that affects it, such as the economy.

Course Curriculum:

Students will learn what it takes to set up and run a business and the types of business organisations there are. You will then look at financial aspects of business, along with the human and operational areas.

You will then consider a broader overview of business strategies, economic influences on the business, and how the different parts of the business react to these issues, as well as learning tools to analyse and judge the success of a business.

Future Opportunities:

Business students find that there is a huge range of opportunities for them, whether this is through a traditional university route, where you may want to specialise in a particular area of business, or through an apprenticeship route (with a company like BAE Systems). You might consider employment, or even developing that fantastic idea you had in the first term of your studies!

Entry Requirements:

All LUSoM qualified students will pass the entry requirements for A-level Business Studies.



A-Level Economics

A-Level Economics is the study of scarcity, and concerns the allocation of society's limited resources amongst their many competing uses; it looks at the way the world works. One of the best things to help you succeed on this course is to keep in touch with the news as we can apply economic theory to absolutely everything! It will really help you to bring your economics to life!

Course Curriculum:

A-Level Courses

Cardinal Newman

The course is split into two parts:
microeconomics and macroeconomics.
Microeconomics focuses on market
failure and government intervention to
fix it, business economics, labor markets,
income and wealth distribution inequalities,
and poverty. Macroeconomics covers
economic performance measures, policies
for economic stability and shocks, costs and
benefits of economic growth, standard of
living measurements, international trade,
globalization, and development economics.

Future Opportunities:

Economics is a highly versatile subject that could provide many different career pathways. Many students decide to study the subject at university, and from there go on to work as economists in various fields. Fields such as with the Bank of England, the CBI, accountancy firms, in economic 'think-tanks', for example, the Institute of Fiscal Studies, in charitable organisations, in multinational corporations, or in government departments.

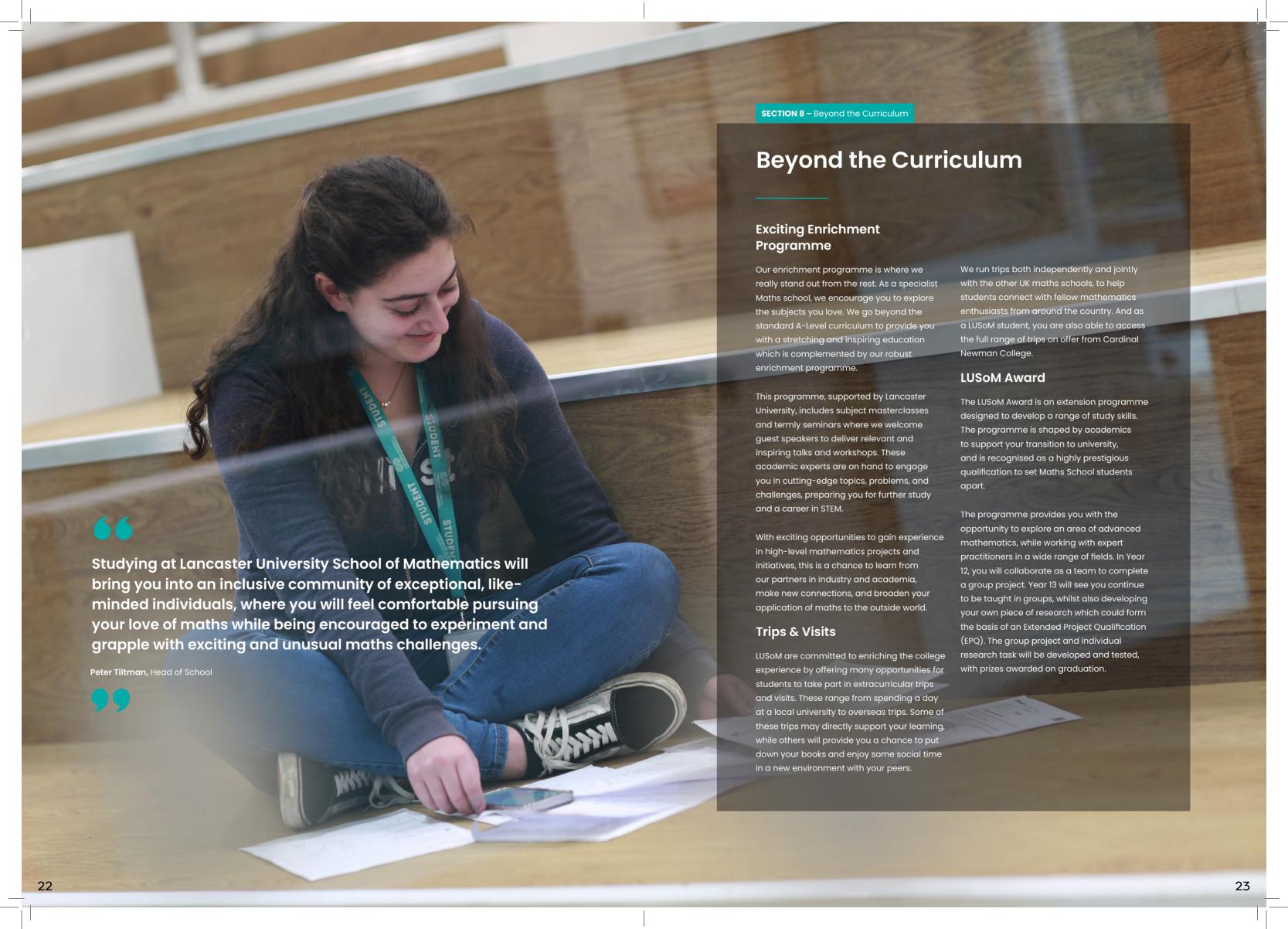
Economics A-Level students are also very well-prepared for the workplace, with many taking up apprenticeship schemes, such as in accountancy or project management in firms such as BAE Systems and Rolls Royce.

Entry Requirements:

Grade 6 in English Language.



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SECTION 9 - Preparing for a future in STEM

Preparing for a future in STEM

In today's ever-evolving world, STEM subjects are becoming increasingly important.

With the advent of AI, the jobs of the future will be completely different and as such, there is an increasing demand for individuals with exceptional knowledge and understanding of Science, Technology, Engineering, and Mathematics, making these fields a promising career choice for many.

Not only do STEM jobs offer competitive salaries, but they also allow individuals to have a positive impact on society through ground-breaking inventions and innovations. From biomedical engineering to artificial intelligence, STEM careers are at the forefront of shaping our future world. So, if you're interested in making a difference and being a part of the exciting world of STEM, now is the time to start exploring the many opportunities available at LUSoM.

Get ready for the future at LUSoM

LUSoM is dedicated to providing students with the knowledge and skills needed to excel in STEM careers and prepare them for higher education courses in STEM subjects.

Based in the heart of Preston, with opportunities such as the Eden Project North in Morecambe, Cyber Force opening in Samlesbury, and GCHQ in Manchester surrounding us, our students are in prime position to lead innovation, drive research and boost the economy in the North West.

With our cutting-edge curriculum and stateof-the-art facilities, we strive to provide an exceptional learning environment that will not only equip students with knowledge, but also give them the critical thinking and problem-solving skills and confidence they need to successfully pursue a career in STEM-related fields.

Our faculty of academics, who are experts in their respective fields, are committed to providing students with a quality education that prepares them for the challenges of the future. We take pride in our graduates who go on to make a positive impact in their chosen fields and contribute to the greater good of society.





Students who successfully complete their studies at LUSoM will be guaranteed an offer for nominated degree programmes at Lancaster University, provided they meet the entry requirements.







LUSoM students benefit from virtual and physical access to the facilities at both Lancaster University and Cardinal Newman College.





Outstanding Campus Facilities

Our brand-new campus is home to a variety of outstanding facilities, designed to make study and student life easier.

The site on London Road – the first purpose-built maths college in the UK - has excellent transport links with direct bus services and rail links that connect LUSOM to the whole of Lancashire.

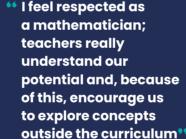
- Purpose-built classrooms and specialist laboratories
- Computer suites and research facilities
- Social spaces and breakout areas
- 400+ capacity auditorium with 4k projection
- A growing library of maths resources
- Canteen and student kitchen facilities
- Rooftop terrace with spectacular views across Preston
- Secure, covered bicycle parking and campus showers
- Close to the main campus of Cardinal Newman College
- A prayer room and quiet spaces



Space for STEM



I feel respected as a mathematician; teachers really understand our of this, encourage us to explore concepts outside the curriculum"



Megan





SECTION 11 - Sister College: Cardinal Newman

Connect with Cardinal Newman

LUSoM students have the added benefit of full access to the courses and facilities available at our sister college, Cardinal Newman.

Just a few minutes walk from the LUSoM campus, Cardinal Newman's main building is a hub of activity for studying and socialising. This beautifully restored and modernised Georgian Mansion is set in stunning grounds which include a lake, woodland, picnic areas, and peaceful landscaped gardens.

LUSoM students may choose to study one of the optional A-Levels available at Cardinal Newman, or simply visit the campus to take advantage of the clubs and community.

Fantastic Facilities

• Sports hall

• State-of-the-art gym

• Events and speakers

- Climbing wall
- Costa Coffee
- Starbucks

Clubs & Communities

• Student Union

- Performing arts and drama
 - Musical theatre programmes
 - Dance company
 - Music, band, and choir groups
 - Trips and visits
 - · Sports academies, including netball, football, hockey, swimming, basketball and badminton

The Library

The Library offers a welcoming and studentfriendly environment with a wide variety of print, digital, and audio-visual resources to assist you with your studies.



Student Wellbeing & Support

LUSoM Bursary

LUSoM is committed to eradicating financial difficulty as a barrier to education, and our college bursary is designed for students who might need financial support to help access resources required for their course. Under the bursary scheme, funds can be applied for to cover the cost of meals, books, college trips and essential materials needed for study with us. We also fund a travel pass for bursary students to get to and from college.

Curriculum Plus

Curriculum Plus is time dedicated for you to meet with staff who will provide support tailored to your individual needs. We want to help you explore your subjects with confidence as you gain a deeper understanding of them. These sessions will be encouraging and will support you in learning an extended range of mathematical skills.

Pastoral Support

An assigned form tutor and a pastoral care team are here to support students with any issues or challenges they may have – both in and out of college.

Parents' Evening

We know how important and reassuring it is for parents to understand how their child is progressing with their studies, so we offer regular events and parents' evenings where families can find out more about their progress and achievements.

Like minded Students

Being surrounded by like minded individuals who share an equal passion for maths has a powerful impact on student wellbeing. This close community provides a level of support that cannot be underestimated!

SECTION 13 – Application Timeline

We can't wait to welcome you to LUSoM

SEPTEMBER

Applications are open to Year 11 students.

Apply online at www.lusom.ac.uk

OCTOBER

Register your interest in the next LUSoM open event

NOVEMBER

Sign up for a taster session or one of our many talks, workshops, and events

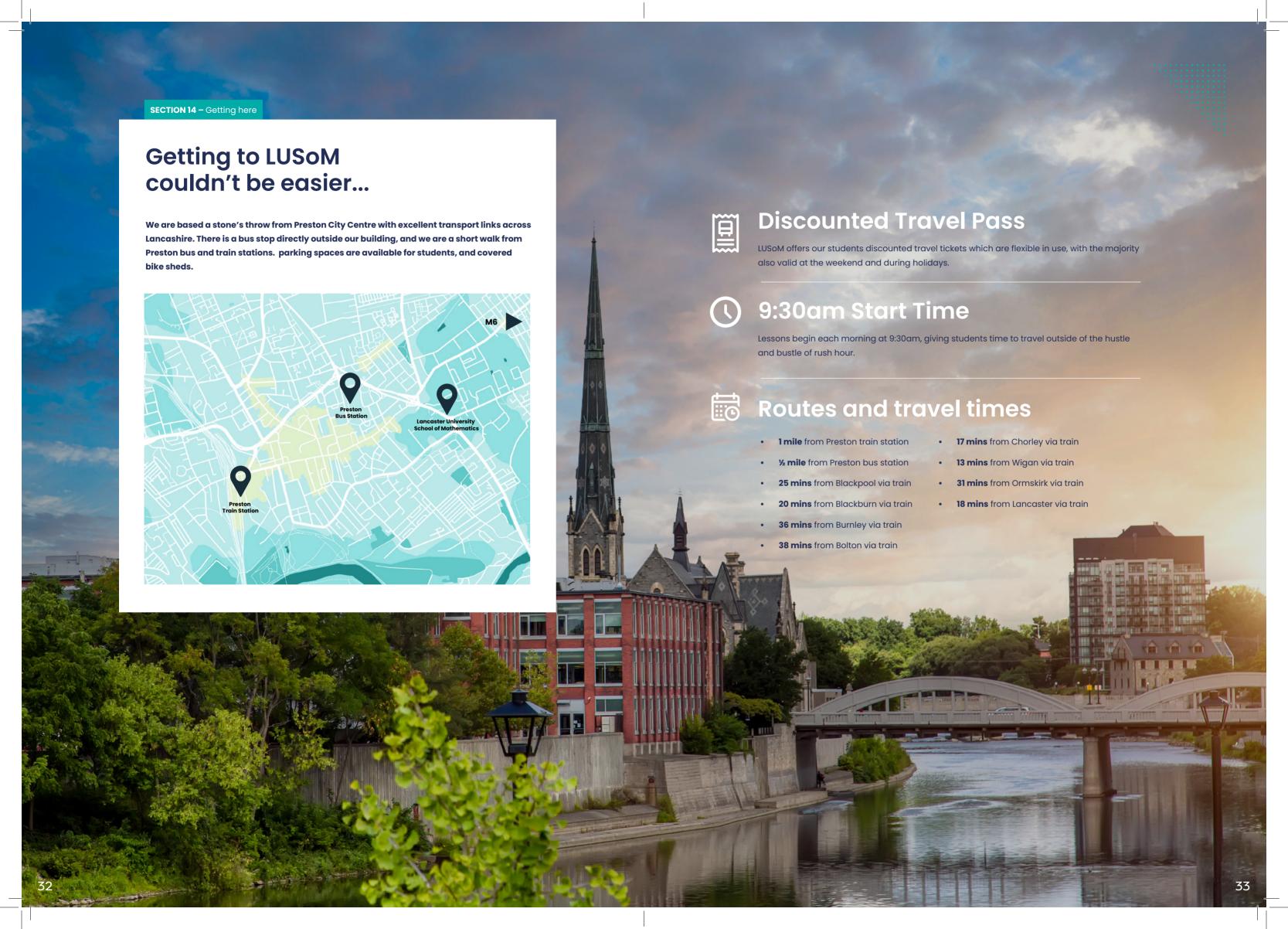
DECEMBER

Application deadline

Find out more about LUSoM (Lancaster University School of Maths) at www.lusom.ac.uk

If you have any further questions, call us on 01772 287 481 or email hello@lusom.ac.uk





Notes	

SECTION 15 – Testimonials



We felt that LUSoM was the right place for Joseph as soon as he'd had his registration interview with Francis, when the way they would be working, from flexibility with the course teaching to the group projects and enrichment activities that would be offered was outlined. Joseph has had a hugely positive experience of college, his enthusiasm for the subjects that can only come from the encouragement of his teachers, shines out and he has also really enjoyed the trips to Lancaster University, the working towards the group project, the trip to Keswick and the many games of chess. Joseph is being encouraged to challenge himself to achieve of his best and aim high; we are very grateful to all of the staff at LUSoM for creating a safe, happy and stimulating learning environment where he can thrive.



DADENT OF STUDEN

Since becoming a student at LuSoM, Rhianne has grown in confidence and has been given the support and encouragement to be her own person and embrace her talents, hobbies and interests. LUSoM definitely encourage development of the whole student - not just the academic side. Rhianne has settled into LUSoM really quickly and very often spends additional time in college with her friends, (outside of her formal timetable of lessons) making the most of the fantastic building and environment to undertake extra study, revision or simply spend time socialising - playing chess, scrabble or completing group puzzles and challenges. All the students are like-minded and driven and support each other to be the best they can be - I only wish college lasted longer than 2 years - Rhianne is so happy here and feels stretched and challenged to continually learn and develop. I would definitely recommend LuSoM to any high achieving school leavers who want to continue to progress in the STEM subjects.



PARENT OF STUDEN



Contact Us:

Find out more about LUSoM

(Lancaster University School of Maths) at

www.lusom.ac.uk

If you have any further questions, call us or email on

01772 287 481

email hello@lusom.ac.uk



