



Loreto
sixth form college

Ofsted
Outstanding
Provider

Faculty of **Science, Sport & Mathematics**

Applied Science

Biology

Chemistry

Computer Science

Computing

Economics

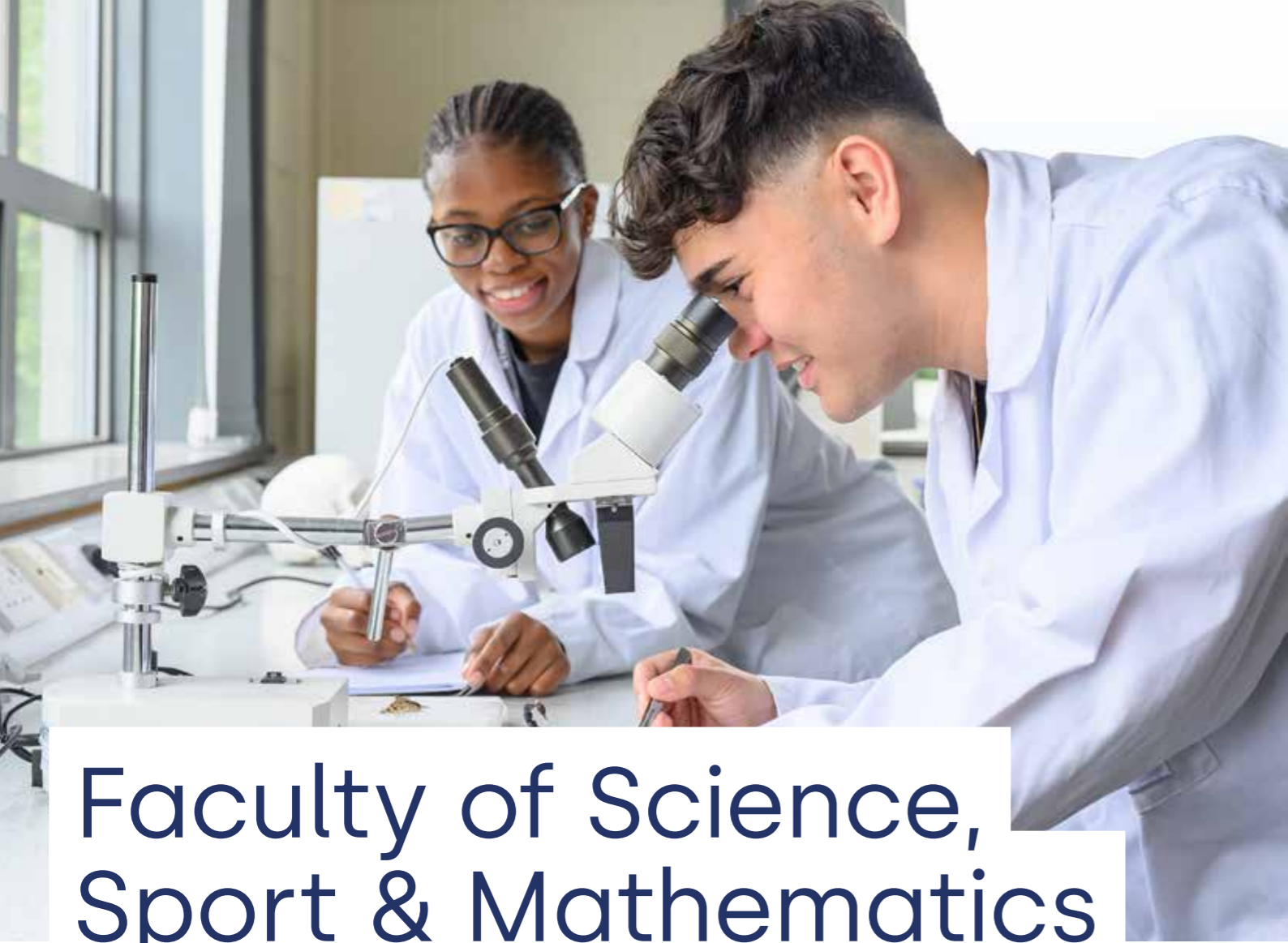
Further Mathematics

IT

Mathematics

Physics

Sport



Faculty of Science, Sport & Mathematics

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Our purpose built Science labs and well-resourced teaching rooms enable all subjects in the faculty to deliver impactful lessons, inspiring a large percentage of students to study Science and Sport related subjects at university.

Whether you study Biology, Chemistry, Physics or one of our vocational options Sport or Applied Science, our dedicated, motivating teachers ensure students make fantastic progress.

Mrs Knowles, Head of Faculty – Science and Sport



We continue to experience a pleasing growth in students wishing to study Maths, Economics and Computing. At Loreto College we are well equipped to accommodate the thirst for these subjects with enthusiastic, skilled teaching

staff, up-to-date computer suites and spacious teaching rooms. All subjects in the faculty deliver impactful lessons and programmes, inspiring a large percentage of students to study Maths, Economics and Computing at university and beyond. Whether you study Maths, Further Maths, Economics, Computing or ICT our students are extremely likely to make fantastic progress in this faculty.

Mr Moss, Head of Faculty – Maths, Economics and Computing



Applied Science

Applied Science is an excellent starting point for any student who sees their future career in science. The course covers a wide range of topics across Biology, Chemistry and Physics; it will allow you to acquire a high level of practical laboratory skills from which the theory is then drawn.

Throughout the course you will have the opportunity to perform a variety of biology, chemistry and physics experimental work, as well as learning how to work safely within a laboratory environment and to use maths and statistics to analyse experimental data.

During your studies you will be supported by expert teachers and will have the opportunities to investigate current scientific issues and relate them to scientific theory.

Assessment is a blend of coursework and exam, so this qualification will appeal to learners who prefer portfolio-based assessments which will cover a variety of scientific investigations.

FUTURE CAREER OPPORTUNITIES

Applied Science students have gone on to study university courses such as Physiotherapy, Pharmaceutical Chemistry, Forensic Science and Electronic Engineering.

COURSE

Pearson BTEC Level 3 Extended Certificate

ASSESSMENT

Coursework and exams



Biology

In A level Biology we study a wide range of topics. These topics are often similar to GCSE topics but we go into much deeper understanding. Some topics include: enzymes, cells, transport in plants and animals, gas exchange, nervous system, immunology, microbiology, inheritance, cell division, populations and reproduction.

We undertake a large number of practical experiments alongside teaching. Some of these experiments include microscope work, dissections, sampling field work and the use of a colorimeter. Practical work will be assessed in your exams and so we will practice practical based exam questions throughout the year. There are lots of great extracurricular opportunities in Biology including the Biology photography competition, the Biology Olympiad and a range of national and international field trips.

FUTURE CAREER OPPORTUNITIES

Biology students go on to pursue a wide variety of related destinations. These include degree courses in medicine, dentistry, veterinary science, biomedical science, biochemistry, zoology, animal behaviour, marine biology, environmental science, physiotherapy and sports science. Many careers within research, healthcare and conservation are accessible through studying biology.

COURSE

Eduqas A level Biology

ASSESSMENT

Exams and practical endorsement



Chemistry

A level Chemistry builds on ideas that you have studied in school. In the first year of study you will develop your knowledge and understanding of atomic structure and ideas on which numerical work and inorganic chemistry are based.

It will give you a foundation for studying the functional groups of molecules and their reactions and raise issues about applying organic chemistry to everyday life. We also cover some fundamental physical chemistry involving energy calculations, rates of reactions and equilibria. In the second year you will study more organic, physical and inorganic chemistry with a strong emphasis on analysis and problem solving.

Practical skills are developed throughout the two years with practical work being carried out each week, and are assessed as part of the written examinations and also via a separate standalone assessment completed in the second year of study.

FUTURE CAREER OPPORTUNITIES

An A level in Chemistry will allow you to pursue any number of avenues such as medical and veterinary courses or other science careers/ courses like forensics and geology. You may even decide to change tack completely and go on to study law or accountancy among other options.

COURSE

OCR A level Chemistry

ASSESSMENT

Exams and practical endorsement



Computer Science

A level Computer Science focuses on the fundamental concepts of computer architecture and the developments of software. The theory component of the course investigates topics such as hardware, networking, algorithms, data structures and computational mathematics. The coursework component is weighted at 20% and students are required to undertake an in depth programming project to solve a realistic problem.

You will develop analytical and problem solving skills in addition to; analysis, design, software development, documentation, testing and evaluation of a system leading to a solution to the given problem.

Our state of the art computing suites provide great opportunities for your development and we have tailor made resources for the delivery of the course, with excellent support from the staff and through the intranet.

FUTURE CAREER OPPORTUNITIES

Many of our students go on to university or degree apprenticeships in engineering, computer science and software engineering.

COURSE

OCR A level Computer Science

ASSESSMENT

Coursework and exams




Kenechi Ogbologu

PREVIOUS SCHOOL:
Urmston Grammar School

STUDYING:
A level Biology,
Chemistry and Maths

Kenechi has taken part in a wide range of extracurricular activities at Loreto including playing for the volleyball team and the Duke of Edinburgh's Award.

“ I have really enjoyed my time so far at Loreto. The teachers here are so supportive and are truly dedicated to getting the very best out of every student. Not only does Loreto encourage academic excellence but also everyone is encouraged to take on additional activities through enrichment, there is really something for everyone. ”



Oscar Flynn

PREVIOUS SCHOOL:
St Patrick's RC High School

STUDYING:
A level Biology, Geography and Maths

Oscar has taken part in a wide range of extracurricular activities at Loreto including the High Achiever's Programme and a University of Cambridge event.

“ I have enjoyed the variety of enrichment activities available at Loreto and the teachers have been helpful throughout my whole time here. ”



Computing

BTEC Extended Diploma in Computing is a two year course that is equivalent in size to 3 A levels. This computing course requires students to learn problem solving skills and to practice coding to solve ICT related problems that people as well as organisations face in today's society. You will develop skills in project management, IT security, systems analysis, databases and graphics to mention but a few topics. You will also learn fundamentals of Computer Science and develop coding skills using Python, HTML, CSS and PHP languages.

There are a total of 13 units to be studied, 4 of which are externally assessed (worth 42% of your final grade). Units 1 and 2 are formal written exams; Units 3 and 4 are assessed using a controlled/timed practical task that is set and marked by the exam board. 9 units are internally assessed via course work and practical tasks (worth 58% of your final grade). Students are expected to be organised as this course combines external exams plus a lot of coursework, so it will be demanding.

FUTURE CAREER OPPORTUNITIES

On successful completion of your BTEC Extended Diploma you can progress to higher education and study a degree in a Computing area. You could also study a related vocational area such as Business Studies, Accountancy or Creative Media. Some students will go straight into employment or an apprenticeship.

COURSE

Pearson BTEC Level 2
Pearson BTEC Level 3
Extended Diploma

ASSESSMENT

Coursework and exams



Economics

In A level Economics you will study four themes. In the first year you will study an introduction to markets and market failure and the UK economy – performance and policies. In the second year you will study business behaviour, labour and the global economy..

During the course you will develop your analytical and evaluative skills. You will learn how to interpret graphs and how to manipulate numerical data. In order to do well on the open response questions you will develop the ability to analyse competing arguments before arriving at an informed evaluative judgement which can be fully justified using the knowledge which you have assimilated over the two year course and the information provided.

Economics is an essay-based subject and the majority of the marks awarded at A level come from structured analytical and evaluative essay writing.

FUTURE CAREER OPPORTUNITIES

Many of our students leave college to take up places at Russell Group universities including Oxford, Cambridge and LSE. Many Economics graduates gain employment in commerce and banking and some secure roles within the City of London itself.

COURSE

Edexcel A level
Economics

ASSESSMENT

Exams



Further Mathematics

A level Further Maths continues to build on the maths learnt in A level Maths exploring more complex algebra and calculus as well as building on the applied maths. The two A levels are taught together so the students get to experience some further maths topics early in the course like complex numbers and roots of polynomials. Students will experience new topics such as De Moivre's Theorem and matrices that they have not met before in GCSE, as well as building on their prior knowledge of topics like trigonometry into the calculus of inverse trigonometry and hyperbolics. In addition, students get to develop their use of pure mathematics in a more applied setting such as the use of differential equations in mechanics.

Students will develop excellent problem-solving skills and be able to apply their gained knowledge in various scenarios. In addition, students will be able to represent their work in a logical and well thought out manner.

FUTURE CAREER OPPORTUNITIES

The careers students can go in to with Further Maths and Maths A level are wide ranging, as it is a strongly facilitating subject that is desirable in many fields. These include engineering, computing, physics, accountancy, banking, law, chemistry and economics.

COURSE

Edexcel A level Further Maths

ASSESSMENT

Exams



IT

BTEC National Extended Certificate in IT is suitable for students who are interested in computers, but who do not want to learn to code. The course covers a range of subjects and is assessed by coursework assignments and external exams. Some assignments require extended writing about theoretical topics while others involve learning practical skills. You will study four topics. In Data Modelling you'll learn how to create and use spreadsheets for business decisions. In Using Social Media in Business you'll look at how Facebook, Instagram and other social media sites are used. In Creating Systems to Manage Information you'll design and create relational databases, whilst Information Technology Systems is a broad ranging theory unit covering all sorts of topics related to how computers work, how they are used and their impact on society.

During the course you will develop a wide range of skills. You'll learn how to use popular software such as MS Excel and MS Access confidently to solve problems and you will carry out research and write extended reports on a range of topics.

FUTURE CAREER OPPORTUNITIES

Some students go on to study information systems at university whilst many IT students choose the course to complement their other subjects. IT is useful for teaching, for scientists, for law, for humanities, business and accounting.

COURSE

Pearson BTEC Level 3 Extended Certificate

ASSESSMENT

Coursework and exams



Saima Miah

PREVIOUS SCHOOL:
Dean Trust Ardwick

STUDIED:
A level 3D Design,
Maths, Physics and
AS Further Maths

Saima took part in a wide variety of extracurricular activities at Loreto including the High Achiever's Programme, debate events and the Global Investment Challenge.

“ College has been a great experience for me and I have enjoyed my time here. I settled in really well and made new friends and have fitted in well. I think that is what brings me joy about coming to this college as it is supportive and helps boost your confidence. ”



Mathematics

A level Maths is a versatile, facilitating A level for those students who really enjoy solving equations, drawing graphs and working with algebra. Pure mathematics contributes two-thirds of the course and involves primarily mathematical proof, geometry and algebra. The remaining third of the course is split evenly between statistics and mechanics (the study of how objects move).

You will develop your logical, analytical, interpretative and problem-solving skills to gain technical knowledge and highly transferable employability skills. Through group work, you will also improve your social and communication skills.

Maths goes well with a high number of other subject qualifications. It is a pre-requisite of most Engineering and Computer Science based university course. Maths also goes extremely well with most Social Science courses such as Geography, Psychology, Accounting, Economics and Business Studies.

FUTURE CAREER OPPORTUNITIES

Degree choices where A level Mathematics is an essential requirement include actuarial science, engineering, economics, mathematics, physics and statistics. There are many well-paid careers which follow on from A level Mathematics: engineer, actuary, quantitative analyst, economics/ financial adviser, accountant, cryptographer (decoding and encoding information), computer animator, and many more.

COURSE

AQA A level Maths

ASSESSMENT

Exams



Physics

A level Physics is an exciting course which can offer you huge opportunities for your future. Physics will inspire you to see the world around you in a totally new way. An A level in Physics shows you are confident with both problem solving and scientific thinking, and are good at working with numbers. Physics will challenge you to think about the world you live in and explain why and how things happen.

In Physics you'll study topics you may be familiar with, such as mechanics, materials and waves, but in more detail and more focus on the maths behind them. You'll also study new topics such as particle physics, quantum mechanics, radioactivity, gravitational fields, astronomy and engineering.

Students have taken part in a range of extracurricular opportunities including the British Physics Olympiad competitions, the Institute of Physics Poster competition and attended IoP Manchester lectures.

FUTURE CAREER OPPORTUNITIES

The vast majority of students pursue a science or engineering based course such as Mechanical Engineering or Aeronautical Engineering, with some as varied as Robotics or Aviation Technology.

COURSE

AQA A level Physics

ASSESSMENT

Exams and practical endorsement



Sport

At Loreto we offer three qualifications from the BTEC Level 3 Nationals in Sport suite. The Extended Diploma (equivalent to 3 A Levels), Diploma (2 A Levels) and Extended Certificate (1 A Level). All three qualifications offer a wide range of assessment methods including written reports, presentations, scenario tasks and written exams. You'll study a wide range of different topics including anatomy and physiology, and fitness training and programming for health, sport and wellbeing.

Students will be required to be motivated to work consistently and independently to achieve the requirements of the qualification. With a range of assessment methods being used, students will develop their organisation, presentation and revision skills. Students will be required to interact with a variety of people whilst completing the qualification and will therefore develop their communication and customer service skills while working with clients.



FUTURE CAREER OPPORTUNITIES

Many students progress onto university courses such as: Physical Education, Coaching and Sports Development, Leisure Management, Sport and Exercise Science, Sports Rehabilitation and many others. Students also chose to pursue careers in a range of areas including: health and lifestyle services, sports development, sports rehabilitation, sports coaching or as a sports performer.

COURSE

Pearson BTEC Level 3 Extended Certificate
Pearson BTEC Level 3 Diploma
Pearson BTEC Level 3 Extended Diploma

ASSESSMENT

Coursework and exams



Loreto

sixth form college

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