



THE SCHOOL OF  
**SCIENCE**

CENTRE OF  
EXCELLENCE  
FOR STEM

2023 Entry



West  
Lancashire  
College



[westlancs.ac.uk](http://westlancs.ac.uk)



# Contents

Welcome .....	03
What can I expect as a student .....	04
Open Events .....	04
Facilities .....	05
Choosing your course .....	06
Learner Services .....	07
Travel to College .....	07
How to Apply .....	08
Parents & carers.....	09
The School of Medicine.....	10
Biology .....	12
Chemistry.....	13
Maths .....	14
Physics.....	15
Psychology .....	16
Sociology .....	17
T-Levels .....	18
Engineering.....	22
Science .....	24
Apprenticeships .....	26
Safeguarding .....	31

# Welcome

Welcome to The School of Science, Centre of Excellence for STEM.

Opened in 2021 by Professor Brian Cox CBE and funded by the Lancashire Enterprise Partnership's Growth Deal Programme, The School of Science delivers courses that aim to unlock potential and give local people the ability to drive forward growth for the area.

Located within our main campus, the Centre houses a large, hi-spec, fully equipped laboratory, preparation room, engineering suite plus an external teaching space.

As a student studying in The School of Science you can choose from A Level Science and Social Science subjects, our unique School of Medicine programme, a BTEC in Engineering or Applied Science, T Level qualifications in Engineering & Manufacturing, or an Apprenticeship in Engineering.

If you are an aspiring future medic, scientist or engineer, we are the perfect post 16 option and we welcome you to join us in The School of Science as you embark on your career.

Best wishes

**Denise Williamson**  
Principal



# What can I expect as a student studying in The School of Science

The School of Science aims to inspire and prepare young people to pursue careers in STEM and become the next generation of Britain's scientists and engineers.

As a student studying with us you will:

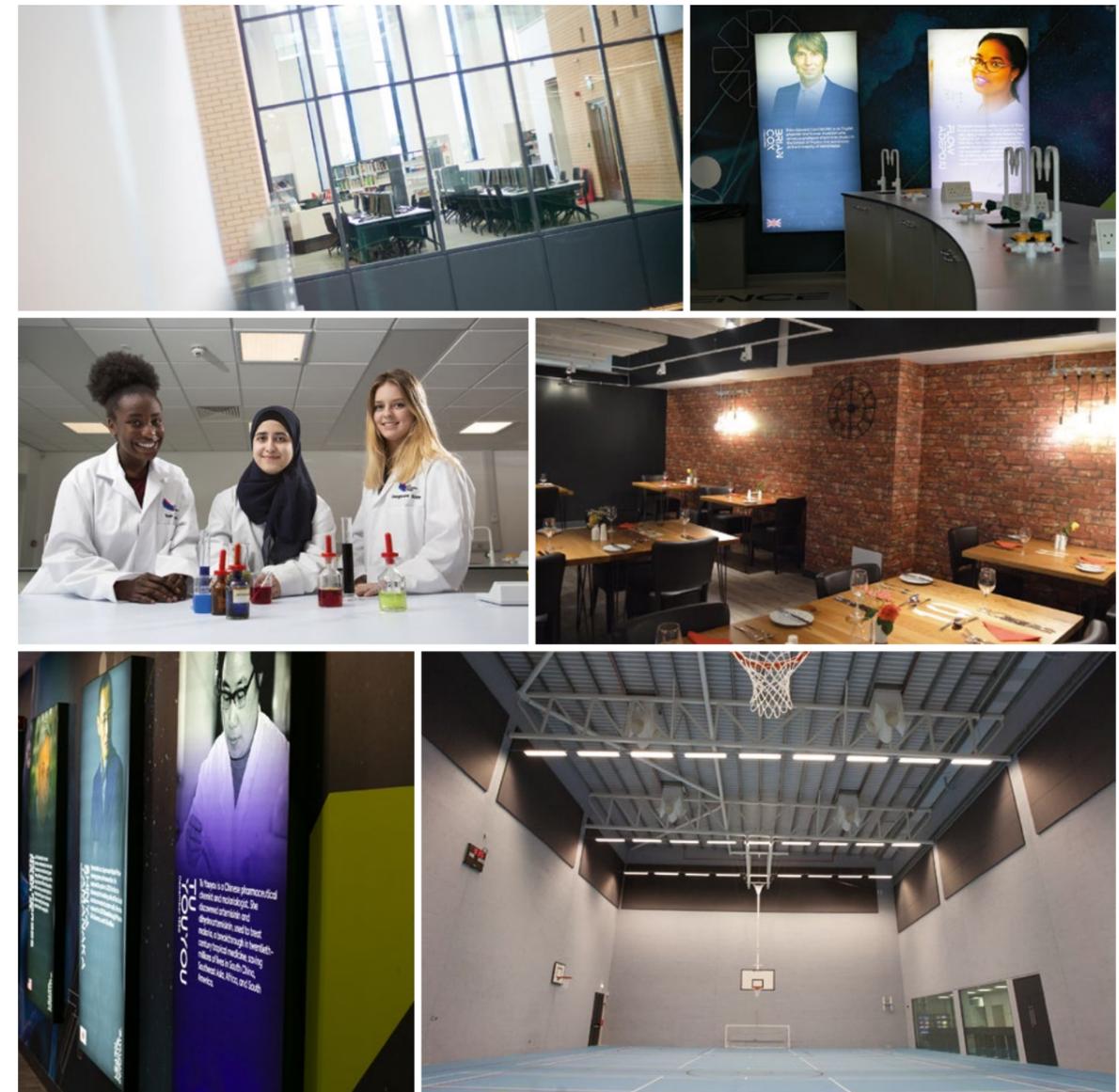
- Study in our hi-tech centre and have access to the very best specialist equipment and technology
- Be taught by excellent Lecturers and Assessors who are some of the best in the business and have vast academic and industry experience
- Study in smaller class sizes (maximum 15)
- Receive subject specific timetabled support
- Attend some fabulous national and international educational trips including Vietnam, Germany, London, and New York
- Apply for our Academic Excellence Award of £1,000
- Have 33% extra contact time (A Level subjects)
- Receive intensive UCAS preparation and a high level of support for personal statements
- Have support and preparation for university entrance exams such as UCAT
- Attend Master Classes and Guest Lectures delivered by subject specific professionals
- Have many opportunities to link with employers from your chosen sector
- Attend university visits across the UK
- Have opportunity to volunteer and fundraise
- Gain additional qualifications
- Take part in cross college enrichment including sports teams, The Duke of Edinburgh Award scheme and many other clubs and activities.

## Open Events

We are proud of our college and fabulous facilities, however the best way for you to find out more about life at West Lancashire College is to come along to one of our Open Events. These events are a great opportunity for you to speak to our expert tutors and also the employers and universities that we work with closely to ensure we help you meet your career aspirations.

Monday 17 October 2022	4.30pm-7pm
Thursday 24 November 2022	4.30pm-7pm
Monday 6 February 2023	4.30pm-7pm

To register your place please go to [eventbrite.co.uk](https://www.eventbrite.co.uk) or [westlancs.ac.uk](https://www.westlancs.ac.uk)



## Facilities

The School of Science sits alongside our main campus which is set in the heart of the town centre of Skelmersdale.

We are very proud of our outstanding facilities available in The School of Science which includes a hi spec, fully equipped laboratory which seats up to 40 students and a preparation room to ensure smooth delivery of laboratory lectures and class activities.

The Engineering suite includes some of the latest industry equipment including Meddings Pedestal drills, a XYZ 1500 Turret Mill with DRO and fully interlocked guards, Rockwell hardness tester,

Tensometer with Brinell Hardness tester, Colchester M300 lathes with DRO, XYZ 500LR VM Centre with Siemens controls, Power bandsaw and a CAD suite.

In addition, as a student studying in The School of Science, you will also have access to all facilities in our main campus which features a light, open atrium area with high quality student facilities including; The Diner, Café West, The Imagery Hair & Beauty Academy, Dance Studio, Hope Theatre, Art & Photography studios, Student Hub, Learner Zone, Sports Hall, Sports Physio Laboratory and Massage Clinics, The Works Restaurant and A Level study area and common room.

# Choosing your course

We offer a wide range of academic and technical programmes that lead to university, employment or Apprenticeship. Whatever your career ambition you can find your next step here.

## A Level programmes

Our A Level programmes offer much more than standard A Levels, and have been designed in partnership with leading employers and universities to give you a distinct competitive edge for progression to University.

As well as traditional A Levels, if you are an aspiring medic, you can choose to study our unique School of Medicine programme.

## T Level Programmes

T Levels are two-year courses designed with businesses and combine college learning with a substantial work placement. These qualifications are for students who want to develop knowledge and skills which helps get straight into employment, an Apprenticeship or higher education, and are equivalent to three A Levels.

## Apprenticeships

Apprenticeships offer nationally recognised qualifications whilst gaining skills with an employer.

Learn on the job, building up knowledge and skills and earn money at the same time.

## Vocational Courses

Our vocational courses include BTEC and NCFE CACHE qualifications.

A BTEC Level 3 Extended Diploma is equivalent to three A Levels A\* - C. BTECs are nationally recognised, work related qualifications that give you the knowledge, understanding and skills that you will need to progress to University, an Apprenticeship or employment.

## University Progression

Whether you study A Levels, T Level, or a BTEC Level 3, you can progress to university. Please see UCAS Tariff tables below:

### UCAS Tariff Tables

Vocational (BTEC & T Levels)	Grade	Tariff points
Grade	D*D*D*	168
Grade	D*D*D	160
Grade	D*DD	152
Grade	DDD	144
Grade	DDM	128
Grade	DMM	112

A Levels	Grade	Tariff points
Grade	A*A*A*	168
Grade	A*A*A	160
Grade	A*AA	152
Grade	AAA	144
Grade	AAB	136
Grade	ABB	128

# Learner Services, Fees, Finance & Support

Learner Services are based in The Learner Zone. The Learner Services team members are trained and qualified to support you and should be your first point of contact for any query you may have.

This could be about:

- Careers and progression advice
- CV preparation
- Applying to University
- Free College Meals
- Financial Support
- Bursaries
- Travel passes
- Financial support for kit costs
- Applying to college
- Wellbeing
- Information, advice and support
- Interviews
- Study Skills
- One to one study support.

For further information please contact Learner Services on **01695 52393**  
email: [ask-the-adviser@westlancs.ac.uk](mailto:ask-the-adviser@westlancs.ac.uk)



Many students benefit from extra support to help them with their studies. The additional learning support team can help you with any support needs you may have whilst in college. A range of support is available, including support for students with:

- Dyslexia
- Dyspraxia
- Asperger's Syndrome
- Physical Disabilities
- ADD/ADHD
- Hearing/Visual Impairment
- Mental Health Concerns
- Learning Difficulties
- Personal Care Needs
- Exam Support.

ESOL support is available for students for whom English is not the main language. You will complete an initial assessment in maths and English. This helps us to identify the right level of course for you. The assessment also identifies if you would benefit from extra support with English and/or maths during your studies. Throughout your programme of study, you are encouraged to ask for additional assistance if you feel this would help you.

If you need advice on the range of facilities and equipment available, or if you have an EHC Plan, please contact the ALS Team on **01695 52300**.

## Travel to College

**Learner Services are located on the ground floor of the Learner Zone and can help you with travel to college. We offer a designated college coach service from the following locations:**

**Liverpool** – Kirkby, Aintree, Maghull, Aughton, Ormskirk, Westhead, Old Skelmersdale

**Southport** – Formby, Birkdale, Southport, Scarisbrick, Burscough, Parbold, Newburgh, Ashurst

**Wigan** – Hawkley, Winstanley, Goose Green, Marus Bridge, Pemberton, Orrell, Upholland, Digmaor, Tanhouse

Please ask in Learner Services for further details: **01695 52393** / [ask-the-adviser@westlancs.ac.uk](mailto:ask-the-adviser@westlancs.ac.uk)  
\*subject to eligibility and availability

## Better Connected

Whether it's a work placement you need, an industry mentor, or advice on how to enter a particular field of work, we've got the industry contacts you need. We work with 100s of employers, including Peel Ports, HCRG Care Group, Open Reach, West Lancashire Clinical Commissioning Group, Edge Hill University and the NHS to ensure that you have access to the best advice and opportunities.

### Careers

Our qualified Careers Advisers and Learner Service Assistants will support you with Careers Information, Advice and Guidance throughout your learner journey. There is a Careers Library and Careers Hub packed with information in Learner Services and the career resources gives you full access to:

- Career drop-in workshops
- Computer packages including Careers Coach
- Career specific literature
- Higher education prospectuses
- Company literature
- Job hunting information

For more details about careers resources just contact Learner Services.

## How to Apply

Choosing a career and a college can be a difficult decision but here at West Lancashire College we want to ensure you are making the right choice for your future career.

**STEP 1** Apply online [www.westlancs.ac.uk](http://www.westlancs.ac.uk)

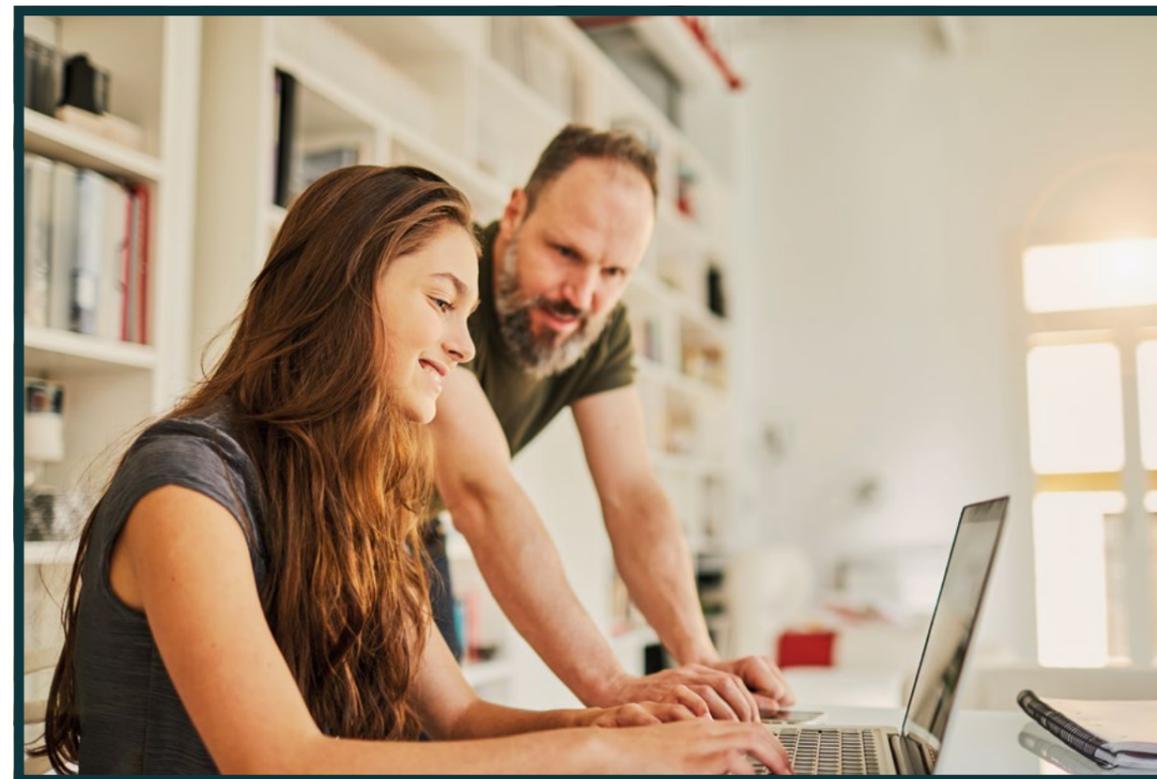
**STEP 2** Book a college interview appointment online

**STEP 3** Attend a college interview event

**STEP 4** After you have finished your exams take some time to relax and enjoy your summer break - you've earned it!

**STEP 5** In July you will be invited to attend a welcome to college event, and you will receive an appointment to enrol on GCSE Results day in August.

## Parents & Carers



We always welcome support from parents/carers. We have an excellent advice and guidance team to take young people through all their options, focusing wholly on their needs and finding the best route to fulfil their potential and achieve their ambitions.

We value parents/carers support and want to work in partnership with you to maximise success on their course.

You can help us by:

- Encouraging students to be on time for class.
- Ensuring students attend all elements of their study programme including their main course, Maths and or English if appropriate, Tutorial, Work Experience placement and enrichment.
- Ensuring that we have your correct contact details.
- Attending the parents/carers evenings during the year - these give you the opportunity to meet staff and check on progress.

- Encouraging students to tell us about any concerns they have regarding their studies and life at college.

- Not taking students out of college for family holidays or non-essential medical or dental appointments during term time.

- Completing our Parent Survey to give us feedback on how we can improve.

We believe that working together with parents/carers is key to our students' success.

We welcome you to all the events and review meetings the college hosts and especially value your feedback and input on what more we can do to ensure your child achieves their full potential.

# The School of Medicine



## THE SCHOOL OF MEDICINE PROGRAMME

The School of Medicine is truly unique and much more than just classroom teaching, it offers an extensive wrap around programme designed to give students a distinct competitive edge.

Our programme offers extensive extra-curricular activities that are designed to give exposure to a wide range of research and academia which enable students to gain a broader understanding of potential career opportunities available within the medical sector, and includes:

## THE PROGRAMME

You will study a combination of A Levels including:

- A Level Biology
- A Level Chemistry

Plus, one or two of the following:

- A Level Maths
- A Level Psychology
- A Level Sociology

## ENTRY REQUIREMENTS

Applicants require 44 points from their best 8 GCSEs at Grade 7 or above including English, Maths and Science.

## WORK PLACEMENT

All medicine students attend a guaranteed work placement. Students shadow Doctors, Nurse Practitioners, Pharmacists and other roles within GP surgeries and medical centres.

The placement programme allows students to explore the various roles with the medical sector first hand, plus provides an understanding of how the different members of the team work together for the best care of the patient, students also have the opportunity to follow a single patient whilst investigating the patient journey.

Within the timetable there are opportunities for students to volunteer within the local community and gain experience working with the general public.

## A LEVELS IN A MEDICAL CONTEXT

A Levels within The School of Medicine are taught in a medical context, enabling students to be fully immersed in their chosen career path from day one. In addition, our A Level timetable provides 33% more contact time than other A Level programmes giving students additional tuition to ensure their success. Students benefit from small class sizes, with on average 15 learners per class, which enables extensive support and guidance.

## FULL PREPARATION FOR UNIVERSITY INCLUDING UCAT & BMAT TUITION

Students are fully prepared for the university application process and follow a structured preparation journey from personal statement to entrance exam and university interview.

Students are tutored on common medical interview themes such as the four pillars of medical ethics, data analysis and the qualities of being a doctor. All students are prepared on common questions, techniques, and the unique qualities each specific medical school looks for, and receive tailored tuition for UCAT, BMAT and aptitude tests. Our extensive preparation programme culminates in simulated mock interviews with multiple stations, just like the real thing.

Preparation is enhanced by our guest seminars where students gain tips for their personal statement and interview advice. In addition, students develop a wider understanding of NHS Hot topics and medical ethics, all required at interview.

The School of Medicine students have progressed to study Medicine and medical related degree programmes at universities across the UK including Oxford, Leicester, Glasgow, and Lancaster amongst others.

## EXTENDED PROJECT QUALIFICATION (EPQ)

Our Medicine students also have the opportunity to complete an Extended Project Qualification, allowing opportunity for students to extend their abilities beyond their A Level study, stand out and prepare for university or their future career.

## MENTORING

The School of Medicine work closely with doctors and health care practitioners who support our students as they apply for Medicine. They help provide extra tuition for UCAT and BMAT entrance exams, mentor students through A Levels and help with interview techniques. Our mentoring programme provides an invaluable and highly successful service to our medical students.

## GUEST SEMINARS, TRIPS & VISITS

The School of Medicine students are able to explore their understanding of different careers in Medicine through a vast number of guest seminars either in college with invited guest speakers, or by attending external events.

Guest speakers have ranged from experts in cutting edge Cancer research and progressive brain diseases such as Alzheimer's to specialist in end of-life care. These guest lectures give students a detailed insight into the ever-evolving medical profession and the research that underpins it.

Lecturers visit from a wide variety of universities with close links to the top 5 medical schools in the North West. In addition to these eye-opening lectures, as a student of The School of Medicine you will have the opportunity to visit the medical schools of your choice.

All of our extra-curricular wrap around has been designed to give students diverse exposure to the range of medical careers available. Students are able to gain tips for their personal statement, medical exams and interviews, as well as receive expert careers advice.

# Biology



## OVERVIEW

A Level Biology gives you the opportunity to study a range of topics such as populations and environmental biology and mechanisms used to control processes in cells and organisms.

Many students who enjoy and successfully complete this subject typically progress onto a range of degree courses including Medicine, Dentistry, Veterinary Science, Biochemistry and Biological Sciences.

## COURSE CONTENT

Students will cover the following topics: biological molecules, cells, organisms exchange substances with their environment, genetic information, variation and relationships between organisms, energy transfers in and between organisms, organisms respond to changes in their internal and external environments, genetics, populations, evolution and ecosystems, the control of gene expression.

## LEARNING & ASSESSMENT

You will be taught in small class sizes, an average of 15 students, alongside like-minded individuals by experienced A Level teachers. You will have regular assessments, small topic tests, larger progress tests and homework all comprising of past exam questions. You will sit 3 exams at the end of the 2-year programme. You will also be assessed on laboratory skills.

## PROGRESSION & CAREER OPPORTUNITIES

A Level Biology allows progression to many science degrees and a wide range of future careers including Academic Researcher, Biotechnologist, Doctor, Marine Biologist, Microbiologist, Nanotechnologist, Pharmacologist, Research scientist (life sciences), Surgeon and Laboratory Technician. Biology graduates are well placed to succeed in any job where data handling or research skills are important. These jobs would not necessarily have to be restricted to science-based employers. Biology is a fundamental subject for careers in the science and health sectors but there are many other routes you can take.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above including English & Maths. In addition, for applicants taking Double Award GCSE Science, you will need at least grade 6/6. For applicants taking Triple Award GCSE Science, you will need at least grade 6 in Biology.

“  
The support I get from my teachers is amazing. The unique small class sizes allows me to easily get extra help on the topics I am struggling with, which has been extra valuable when learning from home.”

# Chemistry

## OVERVIEW

Studying Chemistry can open doors that you did not even know existed. It is a highly respected A Level and combines theoretical understanding with practical and analytical skills. If you like to ask ‘why?’ Chemistry is for you. The food we eat, the air we breathe, the clothes we wear and the mobile phone in your pocket all depend on Chemistry. Chemistry holds the answer to our biggest global challenges. From stable food supplies to changes in the environment and delivery of essential medicines, a chemist will be at the heart of the solution.

## COURSE CONTENT

Physical Chemistry; atomic structure, amount of substance, bonding, energetics, kinetics, chemical equilibria and Le Chatelier’s principle.

- **Inorganic Chemistry**; periodicity, Group 2 the alkaline earth metals, Group 7 (17) the Halogens.
- **Organic Chemistry**; introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols and organic analysis.
- **Physical Chemistry**; thermodynamics, rate equations, the equilibrium constant, electrode potentials and electrochemical cells.
- **Inorganic Chemistry**; Period 3 elements and their oxides, transition metals, reactions of ions in aqueous solution.
- **Organic Chemistry**; optimal isomerism, aldehydes and ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins and DNA, organic synthesis, NMR spectroscopy and chromatography.

## LEARNING & ASSESSMENT

Continuous assessment for learning takes place with a focus on helping you to identify areas of strength and opportunities to improve. From knowledge-based problems to analysis and practical skills, each area will be developed over the two-year course helping you to achieve your best. All will be examined at the end of 2 years in 3 exams with no coursework. You will also be assessed on laboratory skills.



## PROGRESSION & CAREER OPPORTUNITIES

A Level Chemistry allows progression to many science degrees, many of which Chemistry is an essential entry requirement including for degrees in: Medicine, Dentistry, Veterinary Science, Chemistry, Chemical Engineering, Biochemistry, Pharmacy and Pharmacology. A Level Chemistry can lead to a range of future careers including Academic researcher, Analytical Chemist, Biotechnologist, Chemical Engineer, Clinical scientist, Biochemistry, Forensic Scientist, Nanotechnologist, Pharmacologist Research Scientist (physical sciences), Scientific Laboratory Technician and Toxicologist.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above including English & Maths. In addition, for applicants taking Double Award GCSE Science, you will need at least grade 6/6. For applicants taking Triple Award GCSE Science, you will need at least grade 6 in Chemistry.

# Maths

## OVERVIEW

Maths is an exciting and challenging subject that will help to develop your understanding of maths and mathematical process in a way that will help your confidence and will be thoroughly enjoyable. You will extend your maths skills and techniques building upon your GCSE, and in particular you will rely on your algebraic skills. You will be able to recognise how a real-life situation may be represented mathematically.

## COURSE CONTENT

### Pure Mathematics Content

- Algebra and functions
- Co-ordinate geometry in the plane
- Sequences and series
- Trigonometry
- Exponentials and logarithms
- Differentiation
- Integration
- Differential equations and modelling
- Numerical methods
- Vectors

### Applied Mathematics Content

- Statistics
- Statistical sampling
- Data representation and interpretation
- Probability
- Statistical distributions
- Statistical hypothesis testing

### Mechanics Content

- Quantities and units in mechanics
- Kinematics
- Forces and Newton's laws
- Moments – Statistical.

## LEARNING & ASSESSMENT

You will learn in a variety of ways, being encouraged to do independent learning with the aid of technology as well as more traditional classroom teaching and learning. There will be regular internal tests to check your progress and at the end of the two years you will sit three papers with the examining board AQA.

**Paper 1:** Synoptic Pure content from Year 1 and Year 2.

**Paper 2:** Synoptic Pure and Mechanics content from Year 1 and Year 2.

**Paper 3:** Synoptic Pure and Statistics content from Year 1 and Year 2.

## PROGRESSION & CAREER OPPORTUNITIES

Maths graduates have one of the highest rates of graduate employment. Mathematicians enter a very wide range of career areas ranging from aerospace and defence to finance. Studying Maths provides you with valuable skills and a firm base for life-long learning. Maths is highly regarded within higher education and is frequently considered as a 'required subject' for entry onto certain degree courses such as Engineering, Economics, Finance, Sciences and many more.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above, including at least grade 5 in GCSE Maths and English.

# Physics

## OVERVIEW

Physics allows you to appreciate how fundamental science works. It is problem solving on both the largest and the smallest scale imaginable. Physicists use the laws they uncover to develop new materials, machinery, and technology to improve our lives and help us explore the universe further, from computers to telescopes and spacecraft.

## COURSE CONTENT

### First Year content:

- Forces and motion
- Electricity
- Waves
- Quantum Physics
- The particle world

### Second year content:

- Circular motion
- Simple harmonic motion
- Gravitational fields
- Electric fields
- Magnetic fields and Induction
- Thermal Physics
- Nuclear Physics
- Radiation
- Option topic available

## LEARNING & ASSESSMENT

There is no coursework, although your performance during practical work will be assessed and you will need to keep a lab book as a record of your work.

There are three exams at the end of the two years and at least 15% of the marks are based on what you learn during the practical work.

**Paper 1:** 2 hours 34%

**Paper 2:** 2 hours 34%

**Paper 3:** 2 hours 32%

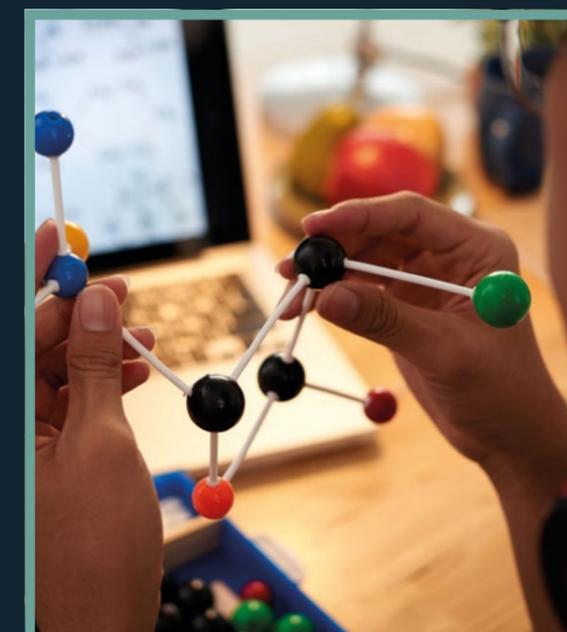
## PROGRESSION & CAREER OPPORTUNITIES

Physics A -Level is frequently considered as a 'required subject' for entry onto certain degree courses which means it can be useful for accessing a wide range of university courses.

Physics offers an infinite number of amazing career opportunities including geophysicist/field seismologist, healthcare scientist, medical physics, research scientist (physical sciences), scientific laboratory technician, meteorologist, operational researcher, product/process development scientist, systems developer, technical author.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above including English & Maths. In addition, for applicants taking Double Award GCSE Science, you will need at least grade 6/6. For applicants taking Triple Award GCSE Science, you will need at least grade 6 in Physics. In addition, students will also need GCSE Maths at grade 6 or above.



# Psychology

## OVERVIEW

Psychology is the scientific study of the mind and human behaviour. If you are interested in understanding the complexity of human nature, then Psychology will give you an insight into how and why people behave in certain ways.

## COURSE CONTENT

Students will cover the following topics:

- Social Psychology
- Cognitive Psychology
- Biological Psychology
- Learning Psychology
- Child Psychology
- Clinical Psychology

During these topics you will develop an understanding of research skills and be required to conduct your own practical studies. As such it is useful for students to have sound numerical and scientific skills.

The issues and debates topic highlights these skills and requires you to critically discuss the scientific challenges when studying psychology, including ethics, individual differences, and social control.

## LEARNING & ASSESSMENT

There are three examination paper, all 2 hours in duration, as follows:

**Paper 1:** Foundations in Psychology

**Paper 2:** Applications in Psychology

**Paper 3:** Psychological Skills



## PROGRESSION & CAREER OPPORTUNITIES

For any career involving interactions with others, psychology will be a useful underlying skill. This includes careers such as police, nursing, human resources, advertising, law, politics, teaching, research and many more. Careers directly related to psychology are broad and include working in traditional roles as clinical, educational, forensic, or occupational psychologists as well as the more progressive areas such as health and sports psychology.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above including English & Maths, plus at least a Grade 5 Maths, (and ideally a Grade 5 in Psychology, if taken), or a similar essay-based subject at GCSE.

# Sociology

## OVERVIEW

Sociology is a social science concerned with the study of human social relationships and the various ways these relationships are patterned in terms of social groups, organisations, and societies. You will look at the diversity of family types in our society today, whether childhood still exists, which gender performs better within education and why this is. You will research patterns in criminal behaviour and the impact of the mass media upon individuals by assessing issues such as whether exposure to violent media can make us act in a violent way. You will take part in discussions and debates in relating to controversial topics and will develop and apply knowledge of research methods.

## COURSE CONTENT

Students will study the following topics:

- Families and Households
- Education
- Mass Media
- Crime and Deviance
- Theory and Methods

## LEARNING & ASSESSMENT

A Level Sociology is 100% exam based, all exams are 2 hours as follows:

**Paper 1:** Education with Theory and Methods

**Paper 2:** Families and Households and Mass Media

**Paper 3:** Crime and Deviance with Theory and Methods

## PROGRESSION & CAREER OPPORTUNITIES

Many students study Sociology at degree level, many choosing to focus on specific elements, such as criminology.

Sociologists tend to progress into careers within the caring profession in occupations such as mental health nursing, social work, teaching, and jobs within human resources.

## ENTRY REQUIREMENTS

Applicants require 5 GCSEs at grade 5 or above, including English & Maths, plus at least grade 5 in Sociology, if taken, or a similar essay-based subject at GCSE.



# ENGINEERING & MANUFACTURING

## DESIGN AND DEVELOPMENT FOR ENGINEERING AND MANUFACTURING – LEVEL 3\*

LENGTH: 2 YEARS

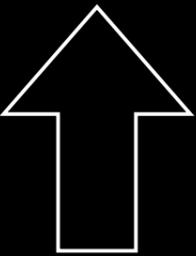


### QUALIFICATION GAINED:

**CITY & GUILDS LEVEL 3 T LEVEL IN ENGINEERING & MANUFACTURING - DESIGN AND DEVELOPMENT FOR ENGINEERING AND MANUFACTURING**

On this two-year course you will spend most of your time in college learning the theoretical and practical skills you will need and develop an understanding of a broad range of issues relevant to the sector. You will be taught by tutors who have years of experience working in the industry and undertake an industry placement with an employer for a minimum of 45 days throughout your course, giving you the chance to put your new skills into practice and be prepared to thrive in the workplace.

**VISIT TLEVELS.GOV.UK**



### WHAT WILL I LEARN

**YOU WILL STUDY THE FOLLOWING CORE MODULES:**

- working within the Engineering and Manufacturing Sectors - an understanding of how materials, conditions and context influence design processes and products
- essential mathematics for engineering and manufacturing - a knowledge and understanding of mathematics including standard matrices and determinants and standard trigonometry
- materials and their properties - understanding material processing techniques and their effects on materials and material quality, the condition of materials, how these are managed, and materials testing methods and techniques
- business, commercial, and financial awareness - basic commercial principles including commercial priorities and markets, customers/clients/partners, and resource allocation

**YOU WILL ALSO TAKE THE FOLLOWING SPECIALIST UNITS:**

- fitting and assembly technologies
- machining and toolmaking technologies
- composites manufacturing technologies

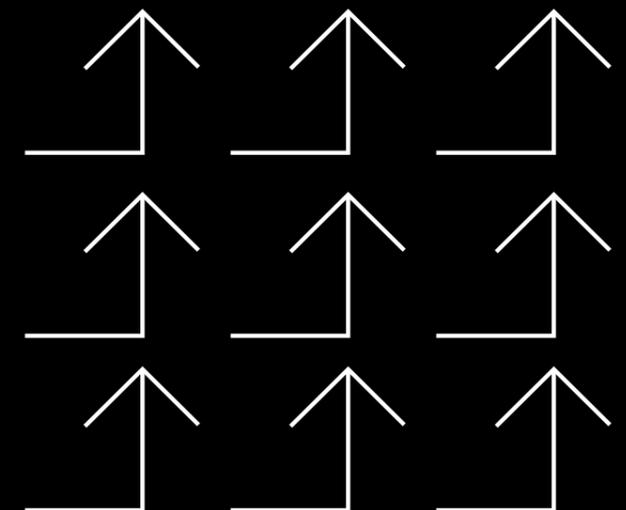
### WORK EXPERIENCE OPPORTUNITIES

Work experience is an important part of your T-Level. You will undertake a substantial industry placement with an employer for a minimum of 45 days during your course to help you prepare for your next steps. You will also undertake an employer-set project as part of the course.

# 45 DAYS PLACEMENT

### ENTRY REQUIREMENTS

Students will ordinarily require a minimum of Grade 5 in at least 5 GCSEs including English and Maths. Students may also need to participate in an assessment to ensure suitability ahead of enrolment.



**T-LEVELS**  
THE NEXT LEVEL QUALIFICATION

\*Subject to Approval

LEVEL LEVEL  
TAKE TAKE  
↑ YOUR YO  
E FUTURE FU  
TO TO TO T  
E THE  
EXT NEXT NE  
L LEVEL  
TAKE TAKE



# Engineering

Engineers make an enormous impact on society. They use maths and physics and apply it to real-life problems. They fix things and provide solutions. Engineering offers good employment prospects, often with national and international opportunities.

Our courses are designed to open up the world of Engineering and develop your knowledge and skills in design, manufacturing and maintenance



## COURSE CONTENT

Communications for engineering technicians, engineering project, mathematics for engineering technicians, mechanical principles and applications, electrical and electronic principles, computer aided drafting in engineering, principles and applications of thermodynamics and electronic fault-finding.

## COURSES

### Engineering Technology First Diploma Level 2

4 GCSE Grades 3-9 including Maths and/or Science

### Engineering Extended National Diploma Level 3

4 GCSE Grade 4-9, 4 or above in Science and English and 5 or above in Maths

## STUDENT EXPERIENCE

- Guest Speakers from industry and trade shows
- Live projects including HS2 and Future U Project
- Trips and visits including London
- 2D and 3D Computer Aided Design
- Links with employers and progression to Apprenticeships
- Fantastic Engineering facilities onsite including 3D System Cube Printers; CNC Routers; Floor Standing, PC controlled CNC Lathe T220i and a CAD suite.

## PROGRESSION CAREERS

- University to study degree and higher-level courses
- Mechanical Engineer
- Production Engineer
- Engineering Maintenance Technician
- Motor Vehicle
- Mechanic/Technician
- Marine Engineer
- Heating & Ventilation Engineer
- Gas Engineer
- Electrician
- Electrical Engineer
- Electronics Engineer

“

**Within my course, we cover many core units and in particular, Mathematics for Engineering Technicians is a personal favourite of mine. My career ambition is to become an architect, in which the Engineering course is preparing me for my next steps into Civil Engineering degrees and apply for universities. ”**

# Science

The Applied Science sector is diverse and wide ranging and can open the doors to many careers and university courses. The sector includes biomedical, forensic, physical, and chemical sciences and will help you compete in a rapidly growing global jobs market.



## COURSE CONTENT

Principles and applications of science, practical scientific procedures and techniques, science investigation skills, laboratory techniques and their application, investigative project, contemporary issues in science, biomedical science, astronomy and space science, physiology of human body systems, forensic evidence, collection and analysis, Psychological approaches and applications, conducting psychological research, health psychology, communicating with pharmacy customers, law, regulation, health and safety in pharmacy, working in the pharmacy team.

## COURSES

### Science (Applied) National Extended Diploma Level 3

4 GCSEs Grade 4–9 including Science, English and/or Maths

## STUDENT EXPERIENCE

- Acquire a high level of practical science skills equipping you with the skills you need for employment and/or university
- Trip to the World Heritage nominated Jodrell Bank University
- Visit the European Organisation for Nuclear Research (CERN) in Geneva and learn about the origins of the universe
- Take part in a live post mortem gaining surgical skills  
or take part in one of our develop a doctor days
- Take part in University Masterclasses such as Hunting for Other Earths, Bugs 'n' Drugs and Evolution, and The Explosive Origin of Animals. All of which will enhance your learning and University application
- Attend Science Shows and Expos



## PROGRESSION CAREERS

- University to study degree and higher-level courses including subjects such as Applied Science, Earth and Environmental Science, Zoology and Herpetology, Biology and Human Biology.
- On successful completion of further study, Applied Scientists can go on to many careers including Biological scientist or biochemist, Forensic Scientist, Chemical Engineer, Pathologist, Radiologist, Physiotherapist, Pharmacist or Science Technician Researcher.

# Engineering Level 3 Apprenticeship

## (Technical Support Technician)

This Apprenticeship is designed for Technical Support Technicians who work as part of a team to provide technical support and expertise for all areas of the Engineering and Manufacturing function including; communications software, test, analysis tools, measurement, off line programming, process control, performance and continuous improvement solutions, capacity planning, production scheduling/planning, product technical applications and capability, technical sales and marketing support, product development and innovation, engineering drawing, purchasing and/or supply of goods or services for engineering activities, quality control, inspection and e-commerce technologies as required.

Apprentices will be able to work with minimum supervision, taking responsibility for the quality, accuracy, and timely delivery of the work they undertake. They will be proactive in finding solutions to problems and identifying areas for improving the business.

### Apprentices will develop the following specific knowledge:

- Understand mathematical techniques, formula and calculations used in a technical support environment
- understand the methods and techniques used to evaluate technical data and documentation
- understand how to identify that the data and documentation being used is current and up to date
- understand the procedure to be used for making changes to issued documentation
- understand where and how to source other areas of technical expertise/information to help solve technical problems
- understand the requirements of the customer (internal/external) and support using the appropriate tools, equipment, and processes



# FIRE IT UP

## Apprenticeships

### Apprentices will develop the following specific skills:

- Produce technical documentation that contains all the relevant and necessary data and information required for the technical support activity being carried out
- present the technical documentation in the required format and ensure that codes, symbols, and other references used in the technical documentation follows agreed UK/international conventions
- save and store technical documentation in the correct format, location in accordance with organisational and/or customer requirements
- make any changes/amendments to the technical documentation using agreed quality assurance control procedures
- develop effective business and/or customer relationships
- provide technical advice and guidance to others
- contribute to the business by identifying possible opportunities for improving working practices, processes and/or procedures

### Plus, one of the following:

- produce engineering/manufacturing production plans
- obtain resources for engineering/manufacturing activities
- obtain and control materials used in engineering/manufacturing environments
- implement quality control/assurance systems and procedures in an engineering/manufacturing environment
- provide technical support services on products or services to internal and/or external customers

- produce documentation to supply or procure goods or services
- produce offline programs for computer numerical controlled machines
- produce programs for scanning/digitizing or co-ordinate measuring machines
- produce programs for programmable logic control equipment
- produce programs for industrial robot applications
- produce engineering software tools/programs for analysis, quality, configuration management, safety assessments, system security applications
- produce engineering drawings/models using computer aided design techniques (such as mechanical, electrical, fabrication, fluid power, integrated systems, or services)
- undertake complex fault diagnostic and/or condition monitoring activities on equipment, plant, or services
- carry out inspection activities on equipment/components/systems (such as mechanical, electrical, electronic, welded, and fabricated).
- check and calibrate control and test equipment used in an engineering and/or manufacturing environment.

### Qualifications achieved

After a period of foundation skills and technical knowledge development all Apprentices will be required to achieve the following qualifications:

Level 2 Diploma in Advanced Manufacturing Engineering (Foundation Competence)

After a further period of skills and technical knowledge development all apprentices will be required to achieve the following qualifications:

Level 3 Diploma in Advanced Manufacturing Engineering (Development Competence) – Technical Support

Level 3 Diploma or Extended Diploma in Advanced Manufacturing Engineering (Development Knowledge)



### Duration

The Engineering Level 3 Apprenticeship is a 42-month programme. Three years on the training element of the programme plus six months working towards End Point Assessment (EPA).

### Off the job training

In year one, Apprentices will be required to attend off the job training for two days per week, followed by one day per week in years two and three.

### Entry Requirements

Apprentices require a minimum of 4 GCSEs Grade 4-9, including 4 or above in Science and English and a 5 or above in Maths.

### Safeguarding

We are committed to safeguarding and ensuring all students experience a secure, safe and welcoming environment in which they can fulfil their potential. We are also committed to assisting students to develop the skills necessary to take responsibility for their own safety. Specific policies and procedures are in place to safeguard young people (students under 18 years of age) and vulnerable adults; these are robust and are reviewed regularly.

Procedures are in place to take all reasonable measures to ensure risk is minimised and appropriate action is taken to address welfare concerns of young people and vulnerable adults. Our college community includes young people aged 14 to 18 and vulnerable adults. For this reason and as part of our commitment to safeguard our students and provide a safe place to learn, we are asking all potential students to disclose if they have a violent or sexual conviction. You will be asked to complete a declaration at the point of enrolment. If you do have convictions you will not be automatically excluded from enrolling on a college course. Each case will be considered on its own merits. For further information please ask to speak to a member of the Safeguarding Team.

### The Prevent Duty

West Lancashire College is committed to Prevent. The Prevent Duty forms part of the Counter Terrorism and Security Act 2015, and the strategy responds to the ideological challenge we face from terrorism and aspects of extremism, and the threat we face from those who promote these views. It provides practical help to prevent people from being drawn in to terrorism and ensure they are given appropriate advice and support. It covers all forms of terrorism, including far right extremism and some aspects of non-violent extremism.

If you have any concerns about radicalisation, terrorism or extremism, please ask to speak to one of the Safeguarding Team.

### Equality

West Lancashire College welcomes diversity in its student population - valuing differences in race, gender, sexual orientation, disability, religion or belief, class and age. We actively oppose discrimination, aim to remove all conditions that put people at a disadvantage, strive to improve access and to provide outstanding support. We are committed to providing an inclusive learning environment. We have produced a NCG Equality Strategy which sets out our response to statutory obligations and our approach to the active promotion of equality and diversity. Please discuss your support needs with us and we will make every reasonable effort to make adjustments to help you succeed.

### Respect

At West Lancashire College we emphasise the importance of respecting all other people, be they staff, students or visitors to the college and respecting their property and the facilities of the college, which exist for the benefit of all students.

### Security

To ensure the security of our students we operate an identity card system where students, staff and official visitors wear lanyards and badges. We will do our best to support the various needs of all our students and to help you all to achieve your learning goals. If you are a disabled person, please ensure that we know what you need so that we can make all reasonable adjustments to help you succeed. Students are asked to help us create an environment where everyone feels safe and valued and where you can work successfully to achieve your full potential.

### Disclaimer

Every effort is made to ensure that the information contained in this prospectus is correct at the time of publication. We reserve the right however, to make alterations or amendments to the details contained in this booklet. Courses will operate subject to sufficient numbers.

## NCG Guarantee

West Lancashire College is proud to be part of NCG, one of the country's leading college groups.

We are one of seven colleges across the country that make up NCG, meaning we're a key part of providing education and training to learners, apprentices and employers across the UK.

Together, we share expertise, support each other to grow, help each other to innovate and accomplish real change for individuals, communities and economies across the country.

## Student benefits

Students studying at any of our colleges benefit from the NCG Guarantee. This guarantee gives all our students access to a range of tools and initiatives centred around a core set of principles. Our courses, additional support services and enrichment activities will equip you with a wider set of skills, all of which aim to make you more employable.

Put simply, the NCG Guarantee gives students access to additional activities, resources and initiatives to help you achieve your ambitions and career goals.

### The NCG Guarantee is centred around:

- Employability
- Community
- Enterprise
- Mental Fitness
- Digital.

Throughout your time with us you will be involved in a range of projects and initiatives focused on these principles. Coupled with excellent teaching and learning, you will complete your course with a unique set of skills which help set you up for your future.



For more information on courses, you can contact us by post, phone, or email and ask for further information on the courses that interest you. You can also access detailed course information sheets on our website [www.westlancs.ac.uk](http://www.westlancs.ac.uk)

West Lancashire College  
College Way  
Skelmersdale  
Lancashire  
WN8 6LH

Phone: **01695 52300**  
Email: [enquiries@westlancs.ac.uk](mailto:enquiries@westlancs.ac.uk)  
Visit: [www.westlancs.ac.uk](http://www.westlancs.ac.uk)

