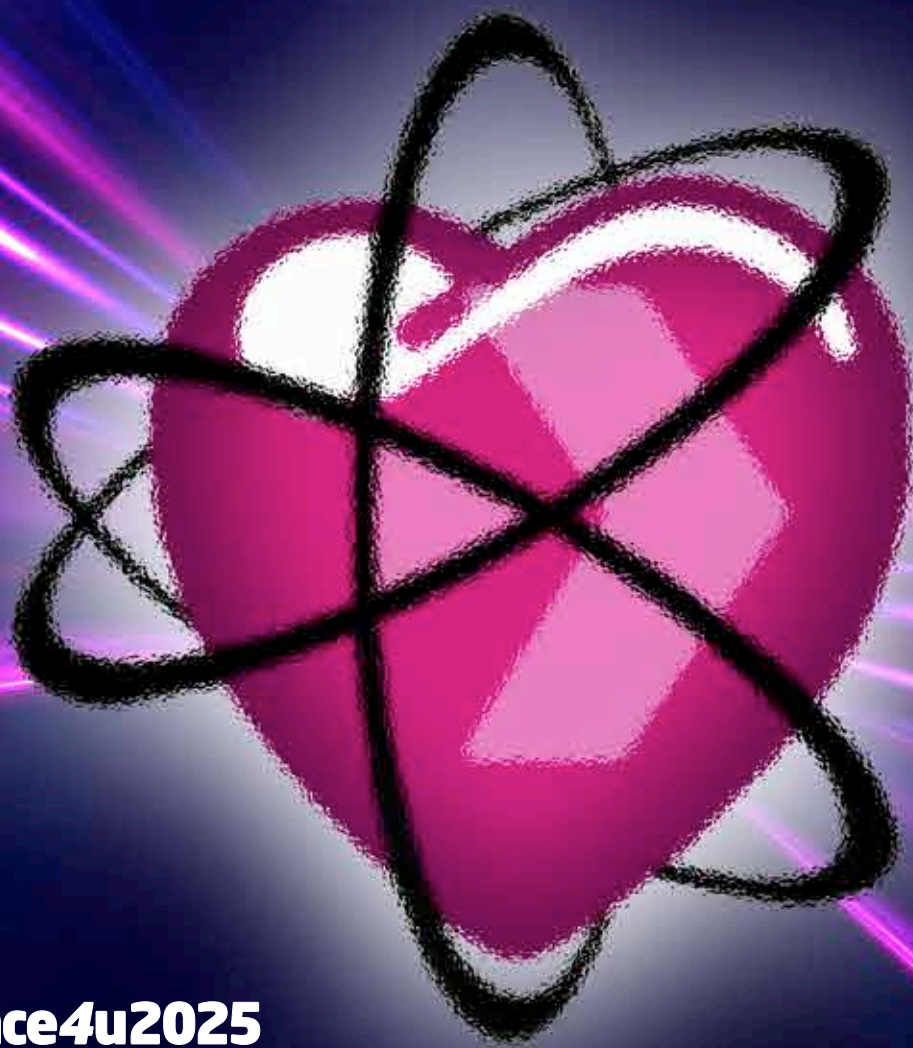




30th April 2025

science4  
the **NextGen**  
*showcasing exciting careers in science*



**#science4u2025**

The 22nd annual Schools Science Conference  
Presented by [science4u.info](http://science4u.info)  
in collaboration with University of Westminster

**Science for the Next Gen**

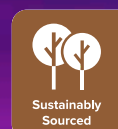
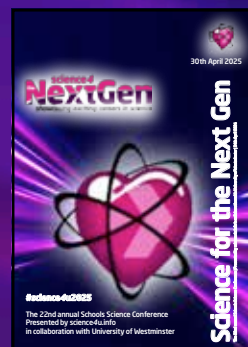
The 22nd annual Schools Science Conference | Presented by [science4u.info](http://science4u.info) in collaboration with University of Westminster | 30th April 2025



- Healthcare scientists are a diverse and specialised community within the NHS, using their knowledge and expertise to develop, design, and deliver patient care.
- They carry out over 1 billion diagnostic and scientific investigations and interventions every year.
- There are over 56,000 people that make up the healthcare science workforce in England.
- They work in over 150 service areas across pathology and laboratory science, physiological sciences, data science, bioinformatics, medical physics and clinical engineering. >>



## Introduction



Printed on 100% recycled paper  
using vegetable oil based ink

## Welcome to our electrifying 22nd annual Schools Science Conference Science for the Next Generation

Get ready for an exhilarating day packed with interactive displays, captivating talks, and hands-on workshops. Scientists and Healthcare Professionals from London and beyond have curated a dynamic program to ignite your passion for science. They're eager to share their insights, discoveries and what they find fascinating about science and their profession; so don't hesitate to bombard them with questions. By the end of the conference, we aim for you to be inspired and equipped with a deeper understanding of the vast array of captivating careers in the realm of science. Who knows, you might even be enticed to join us on this thrilling journey!

A massive thank you to the **University of Westminster** for graciously hosting our **science4u** conference yet again. Thanks, especially, to the **School of Life Sciences and College of Liberal Arts and Sciences** which has contributed extensively.

We also extend our heartfelt gratitude to all our program volunteers, sponsors, and supporters. Without their unwavering support, this unique event would not be possible.

This year's theme, **Science for the Next Generation**, highlights the future of science. Students are the next generation of scientists. Science is changing the way we live and work. The use of Next Generation sequencing is changing the way diseases are diagnosed and treated. Babies are having their whole genomes sequenced at birth. Cancer patients are having therapy based on the genes expressed by their cancer. Next generation AI will change the world of work creating new ways of working and new jobs. **NHS** trusts are using AI to take notes while the clinician sees a patient and turn those notes into letters and treatment plans. Labs are using AI to review images to diagnose disease. Next generation technology will lead to driverless cars and planes, new sources of energy and better health outcomes. **You are the next generation!**

The conference will be an action-packed day where every minute counts! Following the schedule to a tee will ensure a seamless and thrilling experience.

As you navigate the exhibits, there will be some goodies to collect. And keep your fingers crossed for the chance to snag some awesome prizes.

Just a heads up, while the equipment is there for you to experiment with, not everything is up for grabs, so be sure to ask before taking anything.

Join the excitement of winning prizes!  
**Remember to submit your completed evaluation form before the Keynote Speech to enter the Prize Draw.**

Your feedback is invaluable for enhancing our events and securing future sponsor support to keep them free.  
Thank you for your participation!

But the excitement doesn't end there!  
After the event, dive into the conference website at [science4u.info](https://science4u.info) for an immersive post-conference experience:

- Explore the **Virtual Laboratory** and learn more about science
- Engage in the **Battle of the Devices** workshop to determine the top medical innovation
- Tackle the Conference **Quiz** to test your newfound knowledge, and
- Relive the highlights through captivating conference **Photographs**

Oh, and here's a mind-blowing tidbit: did you know that the world of science boasts over 150 diverse and dynamic careers? From mathematicians to AI specialists, geneticists to gene therapists, the possibilities are endless. Science welcomes individuals from all walks of life, regardless of background, ethnicity, or creed.

So, whether you're eyeing university or seeking alternative paths, there's a science career with your name on it. Don't hesitate to inquire about the myriad routes available.

We are beyond excited to embark on this thrilling journey with you and hope you find the day both enriching and utterly delightful!

Let's dive in and unleash the full potential of science together!

*Kimberly Gilmour &  
Stuart Adams*

Chairs of the Organising Committee  
[science4u](https://science4u.info)



We are so excited to welcome you to our University for this year's conference which is focussed on **Science for the Next Generation**.

Our University is made up of a very diverse community of some 20,000 students and 2,000 colleagues from a wide array of different backgrounds and countries. We all share a common set of values and purpose to make the world a better, healthier, fairer and more sustainable place. We care passionately about these topics and bring our creative thinking with science to come up with ways to make positive outcomes for everyone, whatever

their background and hopes for the future. We push forward boundaries in our thinking, education, research and knowledge exchange to enable this.

Having you with us today is so motivating because you are the new and next generation of people that gives us all great hope and inspiration for better future. So please make the most of everything that is available to you in the conference, and have fun. I wish everyone involved all success and thank hugely our collaborators for enabling us to play our part in this superb event.

Welcome to Westminster!

**Peter Bonfield**

Professor Peter Bonfield OBE FREng FIET  
Vice-Chancellor and President  
**University of Westminster**

**UNIVERSITY OF  
WESTMINSTER**

Introduction

Introduction





- The healthcare science professionals who deliver these services are a unique and specialised workforce.

- Healthcare scientists are fundamental to clinical decision making and ensuring patients receive timely, high quality, cutting-edge care.

- If you've received a diagnosis in the past few years, there's a very good chance that a Healthcare Scientist contributed to it in some way.

- That's because approximately 80% of all diagnoses in the UK are reached with a contribution from

Healthcare Scientists and many therapeutic and rehabilitation interventions also rely on our work. >>



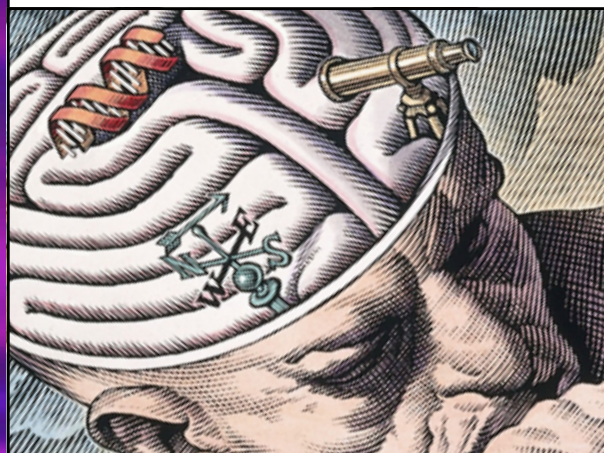
## Programme

### science4 Interaction

hands-on interactive sessions

**Interactive workshop**  
Presented by **science4u**

#### Ethics and Genetics



Join us for an exciting adventure with Kimberly Gilmour and Stuart Adams as we explore ethics around genetics and gene therapy.

Following an opening talk, get ready to dive into lively discussion groups led by experienced facilitators, where we'll dissect and question what we've learned.

You'll be urged to share your own insights, sparking a vibrant exchange of ideas that will reshape the complex landscape of ethics and genetics.

Each group will share their thoughts with a comprehensive summary, capturing the essence of our collective insights.

**Lead Facilitators: Kimberly Gilmour and Stuart Adams**  
Great Ormond Street Hospital,  
Chairs of **science4u**

**science4u.info**  
showcasing exciting careers in science

**Interactive exhibits**  
Meet the Scientists and Healthcare Professionals

#### Science in Practice



Hands-on interactive sessions where you meet scientists, try out some scientific equipment, undertake scientific assessments, answer questions for prizes and learn how science is applied to healthcare.

AND don't forget to ask scientists what they do and why they love their jobs.



### science4 Experimentation

science project and presentation

**Competition**  
Young Scientists present their own work competing for the  
**Don Henderson Award**



Prior to today's event we asked you to undertake a research project that you will present to the other schools in your group. All presentations will be competing for **The Association for Laboratory Medicine Trophy for the Don Henderson Award**.

The award will be presented at the end of the day.

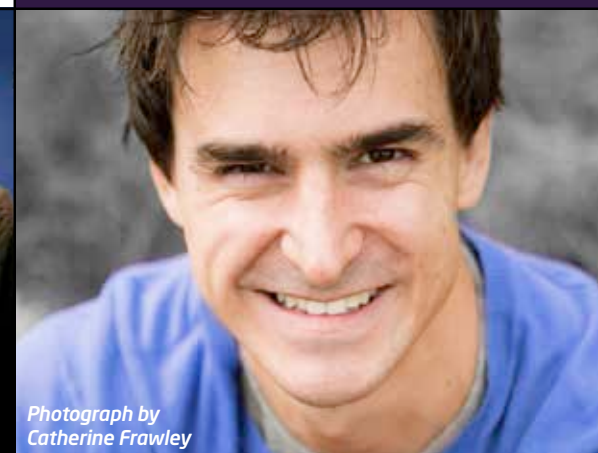


**Association for  
Laboratory  
Medicine**

### science4 Inspiration

keynote speech

**Astrobiology**  
and searching for bacterial life on Mars



Photograph by  
Catherine Frawley

**Astrobiology is a brand new field of science, encompassing research into the origins and limits of life on our own planet, and where life might exist beyond the Earth. So what sort of life might there be on Mars, and how do we hope to find it?**

Prof Lewis Dartnell is a research scientist, presenter and author based in London.

"I graduated from Oxford University with a First Class degree in Biological Sciences and completed my PhD at University College London in 2007. I now hold the Professorship in Science Communication at the University of Westminster. My research is in the field of astrobiology and the search for microbial life on Mars. I am very active in delivering live events at schools and science festivals, working as a scientific consultant for the media, and have appeared in numerous TV documentaries and radio shows. I have won several awards for my science writing and outreach work. My most recent book, **BEING HUMAN: How our Biology shaped World History** came out in June 2023 and was a Waterstones Book of the Year."

**Professor Lewis Dartnell**  
Department of Life Sciences, University of Westminster

# Programme

# Programme





• Healthcare Scientist have embraced AI to support diagnosis and disease monitoring. Examples include >>

• In data analysis, Natural Language Processing (NLP) algorithms are empowering healthcare scientists to extract invaluable insights from the vast sea of

unstructured clinical data. By deciphering electronic health records and clinical notes, clinicians can make more informed decisions and provide superior patient care.

• AI's groundbreaking pattern recognition capabilities are transforming healthcare as we know it. From peering through the lens of a microscope to unravel the mysteries of

abnormal cells, to delving deep into the intricacies of DNA sequences to detect mutations, AI is at the forefront of revolutionizing diagnostics and patient care. >>



## Programme Timetable

### Smooth running



Please consult the program schedule to ensure a seamless flow of the day's events.

A dedicated member of our organizing team will be on-hand to assist you as you navigate the venue and guide you to the designated areas.

# Timetable



### Red Group



**10:15 Welcome & Introduction**  
Large Lecture Theatre Level 2

**10:20 Science for Experimentation**  
Large Lecture Theatre Level 2

**11:00 Science in Practice - A to D**  
1.109 to 1.112 Level 1

**11:40 Lunch**  
Lunch break - LG.06, LG.09, LG.11, LG.12 Lower Ground

**12:05 Science in Practice - E & F**  
C1.15 / C1.16 & C1.18 (Pavilion) Level 1

**12:50 Ethics and Genetics**  
C1.03 & C1.04 Level 1

**13:20 Evaluation**  
Large Lecture Theatre Level 2

**13:30 Keynote Speech**  
Large Lecture Theatre Level 2

**13:50 Round-up & Prize Giving**  
Large Lecture Theatre Level 2

**13:55 Close**



### Blue Group



**11:05 Welcome & Introduction**  
Large Lecture Theatre Level 2

**11:10 Science for Experimentation**  
Large Lecture Theatre Level 2

**11:45 Science in Practice - A to D**  
1.109 to 1.112 Level 1

**12:25 Lunch**  
Lunch break - LG.06, LG.09, LG.11, LG.12 Lower Ground

**12:50 Science in Practice - E & F**  
C1.15 / C1.16 & C1.18 (Pavilion) Level 1

**13:35 Ethics and Genetics**  
C1.03 & C1.04 Level 1

**14:05 Evaluation**  
Large Lecture Theatre Level 2

**14:15 Keynote Speech**  
Large Lecture Theatre Level 2

**14:35 Round-up & Prize Giving**  
Large Lecture Theatre Level 2

**14:40 Close**



As the founder, I am delighted with the continuing success of the annual Schools Science Conference supported by the **science4u**.info website. We held the first conference in 2003 and this year will be the 22nd event. The conferences are based around a theme. I am particularly pleased that the organisers are marking this 22nd year anniversary with **Science for the Next Generation**.

I founded the Schools Science Conference and **science4u** to inform and stimulate young people to consider a career in health related science. While everyone knows about doctors and nurses, I felt that few considered or were aware of the whole raft of people involved in the provision of healthcare. I wanted to give this sector a voice and a platform to showcase what they do, why it is important and why so many of us have chosen to develop exciting and rewarding careers in healthcare science.

I eventually became the Consultant Clinical Scientist in charge of the immunology laboratory combining management with teaching, scientific research, as well as meeting and investigating patients. I have now retired and entered a different phase of life where I can indulge other passions, such as skiing and sailing and whilst I am doing that I would like to take the opportunity to wish you well and hope that you too go on to have an interesting career in healthcare science.

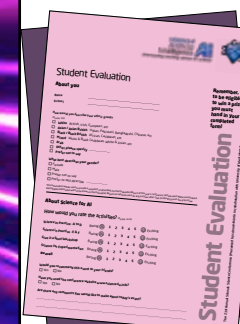
**Don Henderson**  
Founder of science4u

### Prizes

Don't forget to submit your completed evaluation form before the Keynote Speech begins.

Your feedback is invaluable in shaping future conferences and securing funding.

Plus, as a thank you for your input, every completed evaluation form will automatically enter you into a prize draw.



**Students – Pink form**

**Teachers – Purple form**





Healthcare scientists are harnessing the power of AI algorithms to dissect and analyze medical images with unprecedented precision. From X-rays to MRI scans, AI's

discerning eye aids in the swift detection of abnormalities, providing invaluable assistance to radiologists in making accurate diagnoses, thereby enhancing patient outcomes.

Collaborating with AI developers, healthcare scientists are spearheading the creation of innovative digital health tools.

From smartphone apps to wearable devices, these tools empower patients to monitor their health, adhere to treatment regimens,

and communicate with healthcare providers remotely, fostering greater patient engagement and self-management. >>

the science4  
**NextGen**  
showcasing exciting careers in science



## Floorplan

Level

2

Introduction, Science for Experimentation, Keynote speech  
Large Lecture Theatre

Teachers'/Volunteers'  
Tea & Coffee 1.108

Level

1

Science in Practice - A-D  
1.109-1.112

Science in Practice - E & F  
C1.15/C1.16 & Pavilion C.1.18

Ethics and Genetics  
C1.03 and C1.04

Ground

G

Cafe

Lower Ground

LG

LG (seating areas for lunch)  
LG.06, LG.09, LG.11, LG.12

Prayer Room

### Emergency Assembly Point

The emergency assembly point is in Great Titchfield Street



Floorplan

Floorplan





• Furthermore, AI-powered virtual assistants and chatbots are seamlessly integrated into healthcare systems to streamline administrative tasks, address patient inquiries,

and provide personalized health information. This not only enhances operational efficiency but also improves patient satisfaction and accessibility to healthcare services.

• AI is paving the way for precision medicine approaches tailored to each patient's unique genetic makeup.

• The future of healthcare is bright with AI leading the way. As time progresses, AI's role in healthcare will only grow, promising

transformative advancements that will revolutionize the way we approach healthcare delivery and patient outcomes.



## Acknowledgements & thanks

Thank you to all who contributed to make **Science for the Next Generation** a success! **Science for the Next Generation** is presented by [science4u.info](https://science4u.info) in collaboration with **University of Westminster School of Life Sciences and College of Liberal Arts and Sciences**.

### Sponsorship

The event was made possible thanks to the very generous support of our key sponsors; without their support, this event could not have taken place.

#### Gold Sponsors



#### Supporters

Thanks, also, to the following organisations for their generosity.



### Production

The organising group wishes to express sincere appreciation to the following organisations and their dedicated staff for their invaluable contributions to our programme. We extend our deep gratitude to the **Key Content Creators** who brought their insightful experience to our event, as well as the numerous individuals who participated in our **Science in Practice** sessions.

**Science in Practice** presents an exclusive opportunity for students to engage with professionals in the field of science, gaining valuable insights and firsthand experience. These hands-on sessions are a highlight of our conferences, and their popularity is a testament to the diverse range of careers showcased and the enthusiastic and approachable nature of our presenters.

### Key Content Creators

Science for Experimentation



Ethics and Genetics Workshop



### Science in Practice

- Association for Laboratory Medicine
- Balfour Beatty
- Barts Health NHS Trust
- Great Ormond Street Hospital for Children NHS Foundation Trust
- Guy's and St Thomas' NHS Foundation Trust
- Health Services Laboratories
- Imperial College Healthcare NHS Trust
- Institute of Biomedical Science
- King's College Hospital NHS Foundation Trust
- NHS England
- Nomura
- North West London Pathology
- Royal College of Nursing
- South West London Pathology
- Springer Nature
- St George's, University of London
- STEM Learning
- Synnovis
- The Hillingdon Hospitals NHS Foundation Trust
- The Institute of Cancer Research
- The Royal Marsden NHS Foundation Trust
- The University of Law
- UK Health Security Agency
- University of Greenwich
- University of Westminster

### Thank you

It is through collaborations such as these that we can inspire and equip the next generation of STEM leaders.

We look forward to continuing this tradition at the 23rd annual Schools Science Conference.

[science4u.info](https://science4u.info)

## Menarini

Founded in 1886 with headquarters in Florence, Italy.

The Menarini Group is an Italian pharmaceutical company with a turnover of 4.6 billion Euro in 2024 and 17,800 employees.

91% of employees in 2024 were graduates and technicians.

Present in 140 countries worldwide with 18 manufacturing plants and 9 Research and Development centres, the Menarini Group has a strong presence throughout Europe, Asia, Africa, Central and South America.



PP-MN-UK-0868 Date of prep March 2025



### Organising Group 2025

#### Co-Chairs

**Kimberly Gilmour**

Great Ormond Street Hospital for Children NHS Foundation Trust

**Stuart Adams**

Great Ormond Street Hospital for Children NHS Foundation Trust

#### Secretary

**Sue Alexander**

UKAS, University of Greenwich & IBMS

#### Treasurer

**Manfred Almeida**

Imperial College Healthcare NHS Trust

#### Committee Members

**Hannah Dormor**

University of Westminster

**Jennifer Small**

UK Health Security Agency

**Louise Thomas**

University of Westminster

#### Event Organiser

**Sharon Gage**

SRG Project Management



science4u was founded by Don Henderson





## QAVS

In 2020, science4u attained The Queen's Award for Voluntary Service (QAVS)

QAVS is the highest achievement given to local volunteer groups across the UK to recognise the outstanding work undertaken in their local communities and is the equivalent of an MBE.

This achievement is not only in recognition of the work of science4u to inspire students to study science and showcase the many careers in healthcare science, but also the work and support of all the programme volunteers, the schools who attend, our collaboration with the University of Westminster and the sponsors.

science4  
the **NextGen**  
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science4u.info

westminster.ac.uk

### Visit the conference website

Remind yourself of your experience today through **Photographs** of the event, dive into **The Big Quiz** to test how much you've learned today, and embark on an interactive journey through the **Virtual Laboratory**. Plus, take part in the **Battle of the Devices**, where YOU get to decide which groundbreaking medical technology reigns supreme!

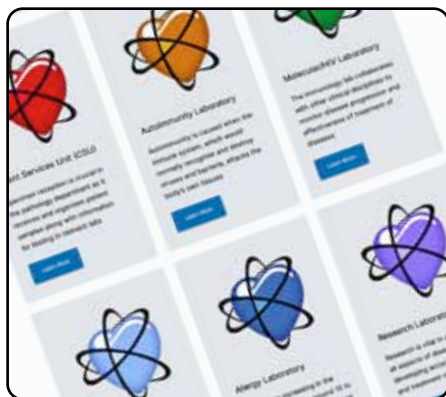
#### Battle of the Devices

Every year, millions of lives are transformed or even saved by the power of medical technology. Our top experts go head-to-head, showcasing their chosen devices and fighting for your vote in this epic showdown! Who will emerge victorious? The choice is in YOUR hands.

#### Virtual Laboratory

Inspired by what you've seen and heard? Explore a world of scientific discovery in our Virtual Laboratory!

- Try your hand at real-world diagnosis and test your skills.
- Dive into a wide range of immunology tests.
- Watch exclusive videos revealing what it's really like to be a scientist..



#### Watch the 2021 Virtual Conference - Science for the World

Catch up on all the inspiring sessions from the 2022 Conference, available for viewing now. Dive into discussions on the critical role science has played in shaping the world today.

## UNIVERSITY OF WESTMINSTER

**It may be early days for you to decide about a career but not for developing your interests.**

Opportunities change fast, particularly in London where business drives and is driven by technology - only a small number of professionals have job titles as recognisable as doctor or lawyer but there are many more which you may not be aware of. We can help you keep yourself informed about the many opportunities and possible career paths that there are in the rapidly changing sciences.

Our central London site is dedicated to the teaching and research of Science and Technology where we offer a full range of professionally certified courses in:

**Biomedical Sciences, Medical Sciences, Pharmacology & Physiology, Nutrition and Psychology, Business Information Systems, Data Science & Analytics, Smart Computer Systems, Computer Science, Computer Network Security, Software Engineering and Computer Games Development**

At Westminster, students will become part of our vibrant research culture and will develop practical and professional skills under the guidance of staff who have an international reputation for their professional and research activities. The University has invested more than £30 million in equipment and has created state-of-the-art learning spaces and laboratories, meaning students will benefit from cutting edge and innovative teaching facilities.

Our courses are informed by employers, our research and collaborations with national and international institutions. Students will be prepared for a professional working life in a range of environments such as hospitals, research institutions, the scientific or medical civil services. For more information on our courses, please visit our web page at [www.westminster.ac.uk](http://www.westminster.ac.uk)

About us