Careers

HELPING YOU TAKE THE NEXT STEP FORWARD

Maths Meets Medicine

Exploring Careers in the Pharmaceutical industry

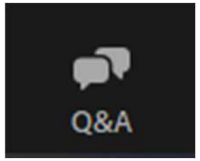
11th March 2025

"We are a community dedicated to leading and promoting the use of statistics within the healthcare industry for the benefit of patients."

Before We Start...

Voice: Audience is automatically muted as default

Q&A: Please do ask questions! Click ‘Like’ to upvote a question.
If question is relevant for our panel, we will look to answer



Technical issues: please use the Chat box

Who are PSI and what do we do?

- We are a community dedicated to leading and promoting the use of statistics within the healthcare industry for the benefit of patients. We are non-profit organisation run by and for members delivering relevant, up to date support and resources including scientific meetings, online training, networking events, training courses, career development

By the end of the webinar, you should:

- Have a better idea of careers using mathematics in the pharmaceutical industry
- Understand the routes into careers in the pharmaceutical industry

"We are a community dedicated to leading and promoting the use of statistics within the healthcare industry for the benefit of patients."

This is me: Emma Crawford

Undergraduate degree BSc Mathematics with placement year

Postgraduate degree MSc Medical Statistics

10+ years working as a statistician in pharmaceutical industry

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ELC0

What about you?

Are you a: student, teacher or parent?

If a student what year of study: Year 9, Year 10-11, Year 12-13

Do you like maths? Yes/ No

Slide 5

ELC0 Polls for moore

Emma Crawford, 2025-03-05T18:19:46.459

What do we do?

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What job does Maths lead to?

What you Study		Job
Law	→	Lawyer
Engineering	→	Engineer
Veterinary Sciences	→	Vet
Medicine	→	Medic
Maths	→	Mat[illegible]cian

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Promoting Statistical Insight

What do we do with maths?

….We use maths to find new medicines and help improve the lives of patients

Do any of these look familiar?

Promoting Statistical Insight

How is Maths used in Medicine?

When we find potential new medicines we want to see if they work

We run a clinical trial to collect data

We use statistics to analyse the data to assess if the medicine works

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What is Statistics?

- **Statistics** is a **type of maths**

- Really, it's the **study of data**
  - How do we collect data?
  - How do we summarise and analyse data?
  - How do we present data?

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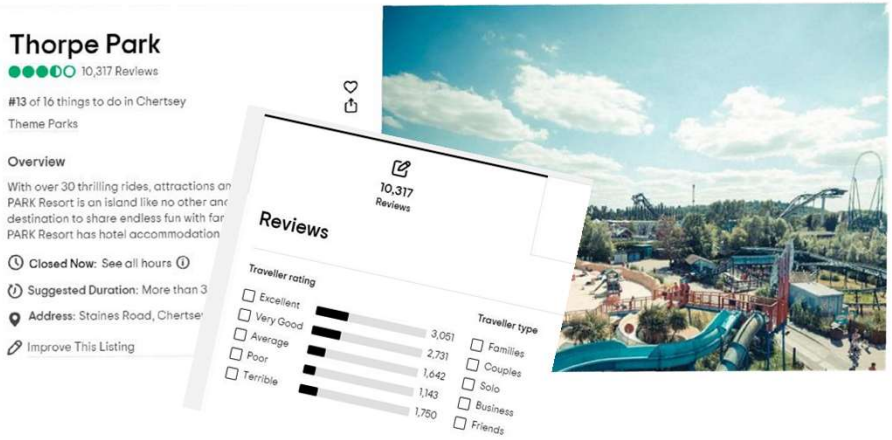
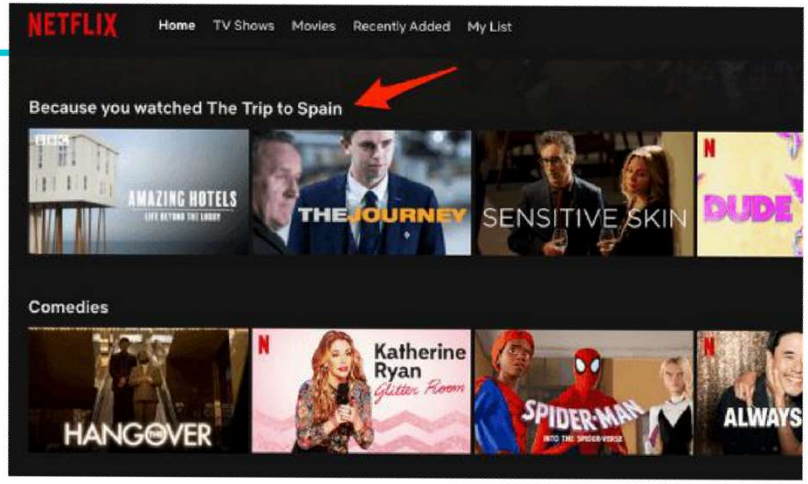
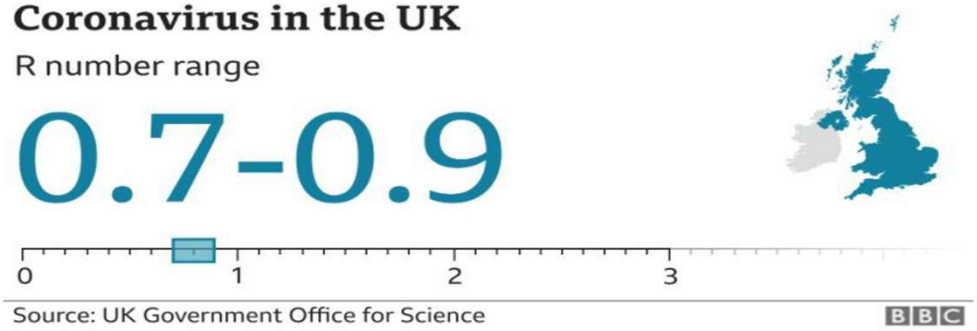
Statistics is all around us!





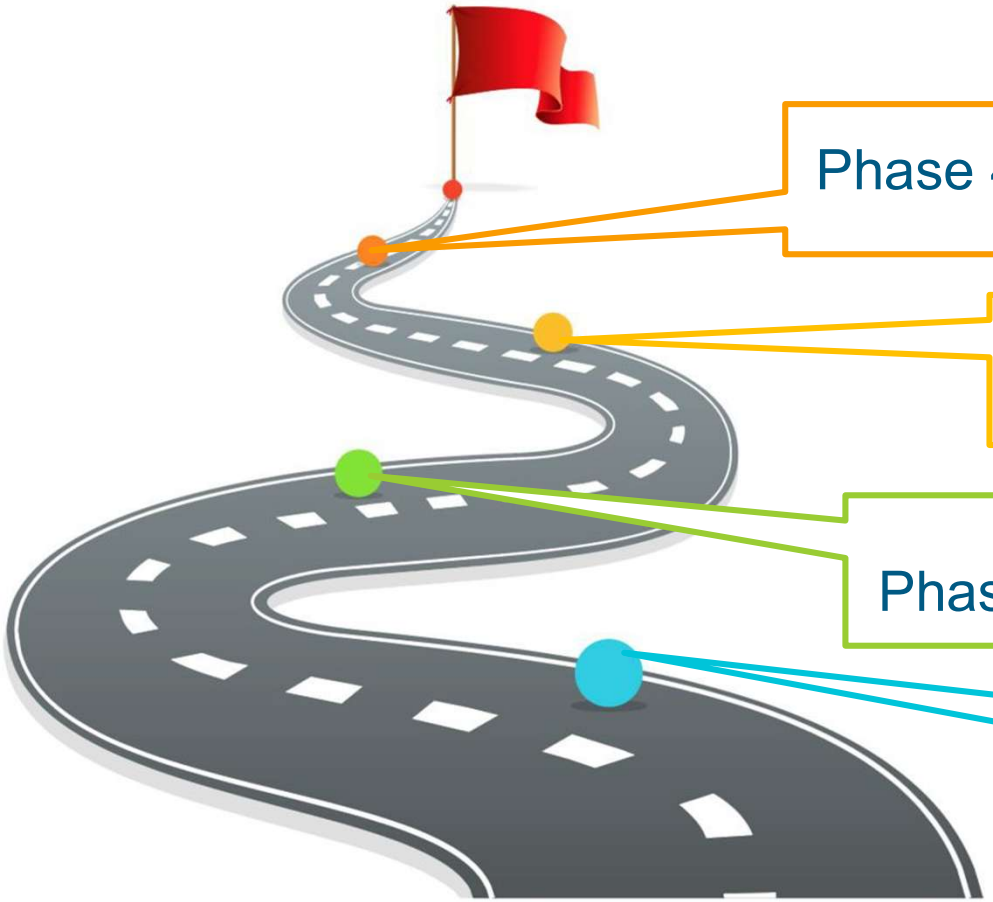


Developing a New medicine

- Developing a new medicine has many steps – it is a long process!

- Clinical trials study the **effectiveness** and **safety** of medications or medical devices in groups of people.

Questions we can answer with Statistics…



Phase 4: Does it work for children and adults?

Phase 3: Is it better than any existing treatment?

Phase 2: Which is the best dose?

Phase 1: Is the medicine safe to take?

Is This Your Future Career?

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ELC0

What about you?

Do you have a future career in mind? Yes/ No/ Not Sure

Slide 16

ELC0 Polls for moore

Emma Crawford, 2025-03-05T18:19:46.459

How does this sound?

Improving patients lives

Global impact

Advancing medicine

Key role

Career progression

Always learning

Flexible working

Generous pay & benefits

Work variety

Collaboration

Teamwork

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A Working Week in the Life of a Medical Statistician

MON

- Meet with **cross-functional** team to discuss proposed design for new trial.
- Offer statistical expertise on proposed **endpoints** (what we are going to measure) and **sample size** (required number of participants).

TUE

- Document the statistical approach for an existing trial by writing the **Statistical Analysis Plan.**
- Perform **detailed data review** for ongoing trial, ensuring data integrity and completeness

WED

- Collaborate with programming team to review the **derivations of analysis datasets**
- **Draft responses to regulatory questions**, particularly about study design or statistical methodology.

THU

- Perform **statistical analyses** of clinical endpoints using statistical software
- Attend a **study team meeting** to discuss progress of an ongoing trial, including patient recruitment, timelines for key deliverables, etc.

FRI

- **Attend a training session** on new methodology, software tool, or regulatory guidelines
- Collaborate with Medical Writer to **author an abstract** for an upcoming scientific conference.

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How to get a job in the industry

ELC0

What about you?

Do you know what you want to study next? Yes/ No/ Not sure

Slide 20

ELC0 Polls for moore

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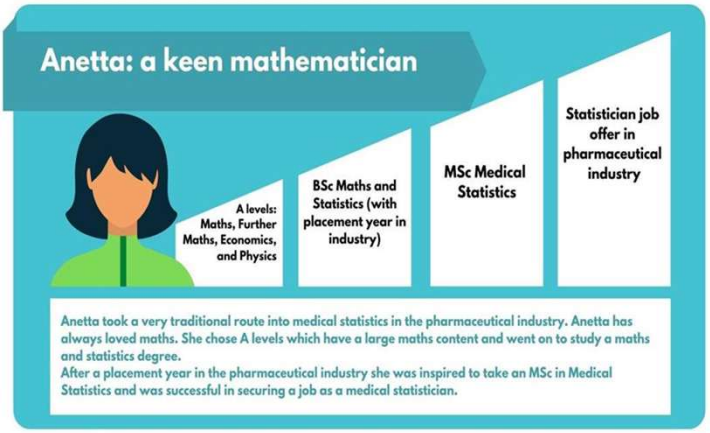
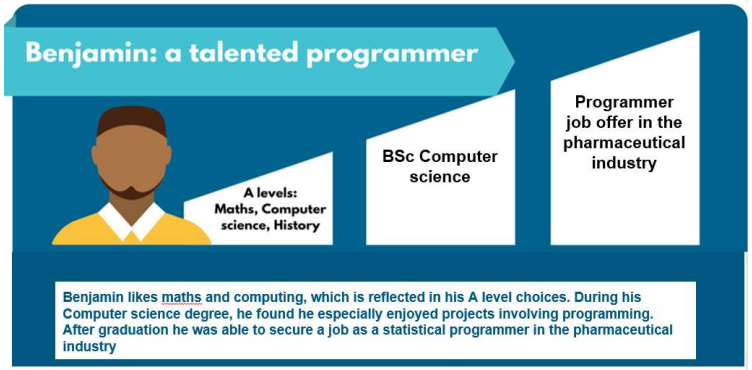
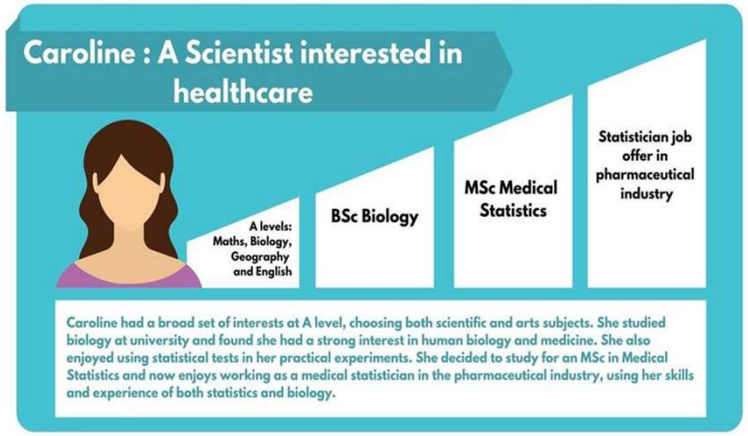
Next Steps







https://www.psiweb.org/careers/jobs/next-steps

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Graduates of Maths, Statistics & Other Quantitative Subjects are employed in Medical Research

- Statisticians
- Programmers
- Data Managers
- Epidemiologists
- Data Scientists

See more about university courses here: https://www.psiweb.org/careers/educationandresources/university-courses

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Meet the professionals

"We are a community dedicated to leading and promoting the use of statistics within the healthcare industry for the benefit of patients."

Sarah Crossley – Apprentice Statistician

Who am I?

My name is Sarah

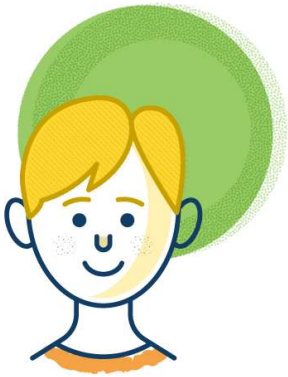
Second year Medical Statistician Apprentice

In my spare time I love getting involved in my local improv communities!

My housemates and I have recently fostered a cat called Minerva who is very cute but shy, so incase she doesn't appear on the call here she is

A Level choices

- I had no idea what I wanted to do or study
- I was very worried about making the ”right” A Level choices
- Chose a combination of what I was good at, what I enjoyed and what I thought I should study



University Years

- Studied Mathematics with a year in industry at the University of Birmingham
- The year in industry is the best thing I have ever done
- I spent my year working in a Pharmaceutical company and getting paid for it!

The apprenticeship and Beyond

- What is the apprenticeship?
- I started my apprenticeship in January 2024
- Monday – Thursday is a standard work week for a graduate entry statistician
- Friday is my apprenticeship day
- On graduation I will have 3 years experience working!

Alistair Haston

IQVIA

About me

Darlington
Reading
HEBRIDES
Portree
Elgin
Inverness
SCOTLAND
Aberdeen
Dundee
St Andrews
Stirling
Glasgow
Edinburgh
United Kingdom
Newcastle upon Tyne
NORTHERN IRELAND
Sligo
Isle of Man
Dundalk
Drogheda
Great Britain
Leeds
Liverpool
Manchester
Galway
Ireland
Dublin
Limerick
Kilkenny
Birmingham
Norwich
Tralee
Waterford
Dingle
Killarney
Cork
WALES
ENGLAND
Cambridge
Oxford
Cardiff
Bristol
London
Exeter
Bournemouth
Plymouth
English Channel

LUFC

Education

Maths
Physics
Biology
(AS Level: PE)

Programming: None

Northumbria University
NEWCASTLE

BSc Mathematics

Programming: MATLAB, R

University of Sheffield

MSc Statistics

Programming: R

Biostatistician at IQVIA

- Biostatistician at IQVIA: Nov2020 – Present
- Programming: SAS

What does my job involve?

- Writing specifications and programming
  - Datasets
  - Tables, Listings, Figures
- Writing Statistical Analysis Plan
- Managing the biostatistics project team
- Communicating with other IQVIA departments and the customer (pharmaceutical company)

Tabitha Lennox – Statistical Programmer

Statistical Programmer at GSK

Education

A-levels:

Maths

Further maths

Computer Science

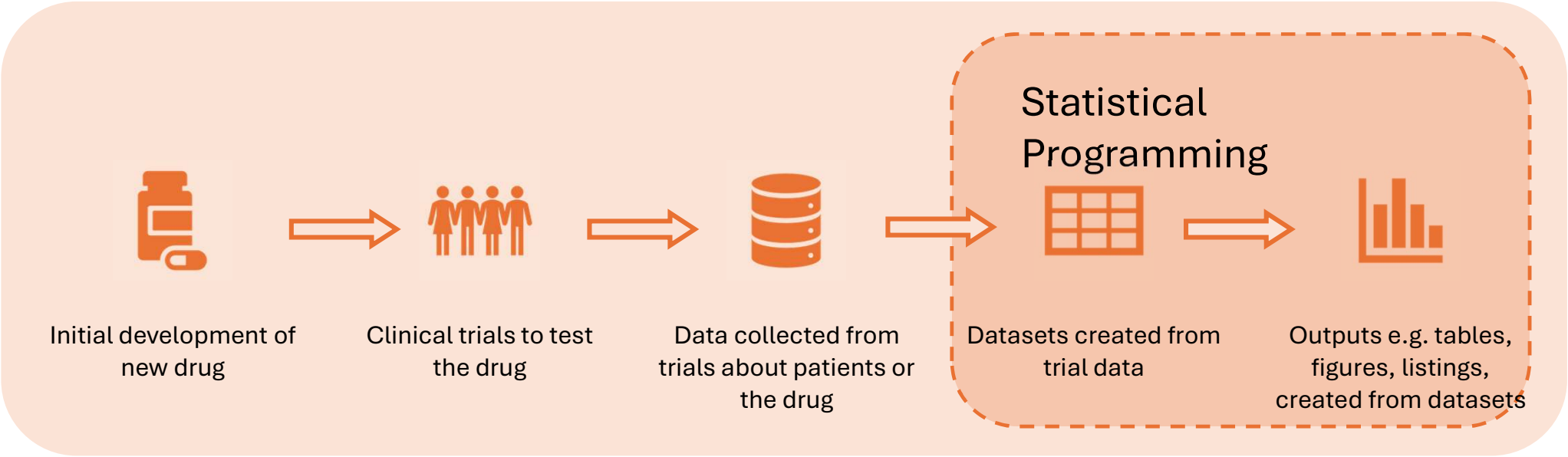
Physics (AS Level)

Degree:

Mathematics with Computer Science BSc, University of Southampton

Career

What do I do?



ABOUT ME

Katie Gwinnnell

A LEVELS

- Math's
- Further Math's
- Chemistry
- Economics

PLACEMENT YEAR

- **Statistics and Data Science Placement Student** at Bayer Pharmaceuticals

ASPIRATIONS

- Dancer / Dance Teacher
- Chef
- Actuary

UNIVERSITY STUDIES

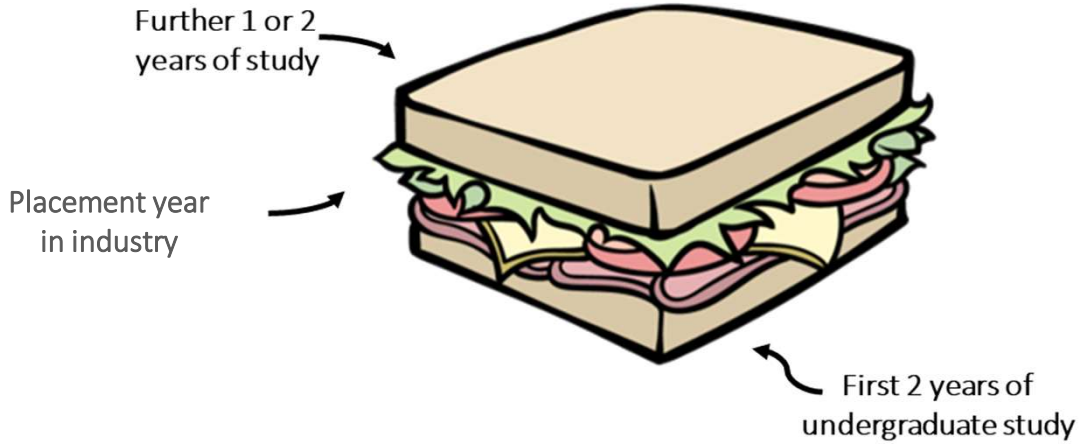
BSc Mathematics at the University of Bath

YEAR IN INDUSTRY (SANDWICH COURSE)

- **A Year In Industry** is a work experience program offered by universities to students which involves taking a year off from academic studies in a professional setting and gain practical experience in a chosen field. This year is typically taken between your second and third year of studies.

Benefits of a Placement Year:

- Opportunity to earn a salary
- Enhances your career prospects
- Expand your network
- "Test drive" a job/industry



STATISTICS AND DATA SCIENCE PLACEMENT

A LEVELS

- Math's
- Further Math's
- Chemistry
- Economics

PLACEMENT YEAR

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NEXT STEPS

- **MSc Medical Statistics**

Hey!

Oswald Dallimore

NIHR Pre-doctoral Fellow
@ Imperial CTU

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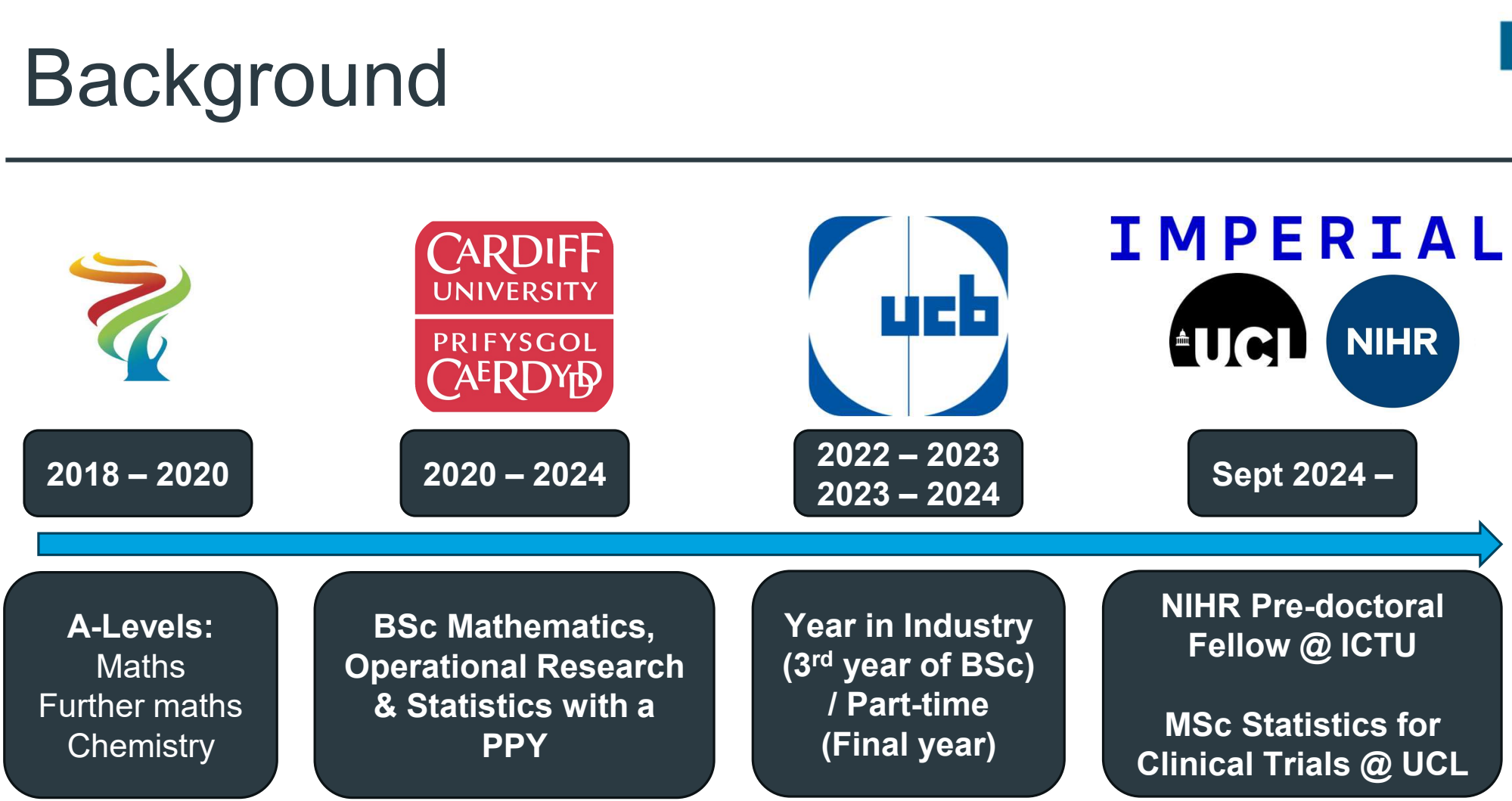
Background



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Role

Data simulation

Tool development

Student Statistician

Presenting to trial team

Programming trial outputs

Career Young committee

Networking events

Graduate teaching assistant

Systematic review

IMPERIAL

UCL

NIHR

NIHR Pre-doctoral Fellow

MSc

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Q&A

"We are a community dedicated to leading and promoting the use of statistics within the healthcare industry for the benefit of patients."

ELC0

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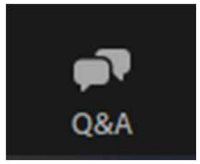

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ELC0 To be completed?

Emma Crawford, 2025-03-05T18:05:59.806

Want to learn more?

https://ncw2025.co.uk/vcf-lobby/room-2/psi-careers/

PSI Careers

HELPING YOU TAKE THE NEXT STEP FORWARD

https://www.psiweb.org/careers/schools-zone

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Thank you!

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Potential questions

- What is your favourite part of your job?
- What is the most challenging part of your job?
- What does a typical day look like?
- How and when did you hear about careers in the industry?
- Any tips for students for getting into this area?
- Do you get to travel?
- What degree level and subject is required for a job in medical statistics
- What is the difference between between data science and statistics?
- Is there a lot of variety in your job?
- Do you have to work long hours?
- Does it pay well?
- Is there work experience or volunteering that would be helpful?
- How do you navigate GCSE/ A-level/ university option choices?
- What is one thing you know now about careers that you wished you knew when you were at school?