Cloud–SPAN Impact Report

February 2021 – June 2024

Our impact on future research

UKRI UK Research and Innovation

Welcome!

Since the launch of the Cloud-SPAN project in February 2021, our team has worked hard to develop and deliver accessible training resources that enable interdisciplinary researchers to generate and analyse big data using cloud-based high performance computing.

This impact report is based on data collected from our course participants to better understand how the training resources impacted them, both immediately after they attended training events and in the longer term.

The definition of impact varies depending on the user. We explored impact in relation to an increase in knowledge, acquisition of new skills and how they were implemented on a day to day basis.

The data is really encouraging and demonstrates the positive impacts Cloud-SPAN initiatives have had on attendees and their future careers.

We would like to thank everyone who has supported our project so far, participants, colleagues at the University of York, partners and funders! We are extremely grateful for your contributions and excited to commence new activities in the future!

The Cloud-SPAN Team

31

Training activities hosted

350

Participants completed activities

8

Online modules

28%

Learners return to take another course

60

Scholarships allocated

About Cloud-SPAN

Cloud-SPAN is a UKRI and NERC funded project aiming to give early career researchers the skills they need to generate and analyse big data using cloud-based high performance computing. Our highly accessible training resources are comprehensive and easy to follow.

From February 2021 to June 2024 we have provided 31 training activities to over 350 participants based at 76 institutions across the UK. We are proud of the inclusive and welcoming learning environment we provide, which sees 28% of our learners return to take a second course.

Networks have been established nationwide, facilitating an exchange of knowledge and experience. Our open-access self-study materials are hosted on GitHub and accessible to everyone, allowing participants the convenience of learning at their own pace.

32 scholarships have been allocated to members of underrepresented groups in science and those with financial difficulties.

CLOUD-SPAN TIMELINE
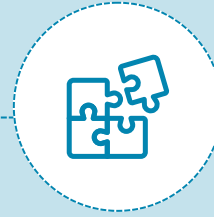
FEB - DEC 2021

Official launch of the Cloud-SPAN project!

Creation of the handbook, logo, website, X and LinkedIn Accounts

Delivery of a Genomics Workshop

JAN - JUNE 2022

Delivery of Genomics, Prenomics and a Code retreat.

Creation of the Web-based Self-Assessment App

Self-Study Modules opened for registration

JULY - DEC 2022

Delivery of Statistically useful experimental design, Metagenomics, Prenomics, Genomics and a Code retreat.

NERC Funding secured for additional courses

JAN - JUNE 2024

Delivery of Genomics, a Code Retreat, Metagenomics and Core R

Self-Study Module on Automating AWS Instance Management opened for registration

JULY - DEC 2023

Delivery of Metagenomics, Prenomics and a Code Retreat

Metagenomics Self-Study Module opened for registration

NERC Funding secured for additional courses

JAN - JUNE 2023

Delivery of Core R, Statistically useful experimental design, Automation of AWS Instance Management, NERC Metagenomics and two Code retreats.

Hosted DaSH Award Holders Meeting

Collaboration with White Rose DTP established

MEET THE ALUMNI!

Our aim was to develop the big data analytics skills of UK based early-career researchers through the provision of training resources which are not readily available at their institutions or workplace.

The majority of our learners are doctoral students [58%] and researchers [24%] in the early stage of their career,
The highest percentage of learners were based at the University of York.

29%
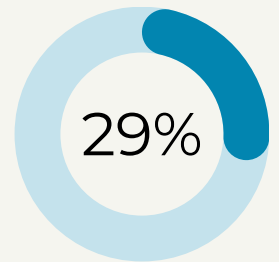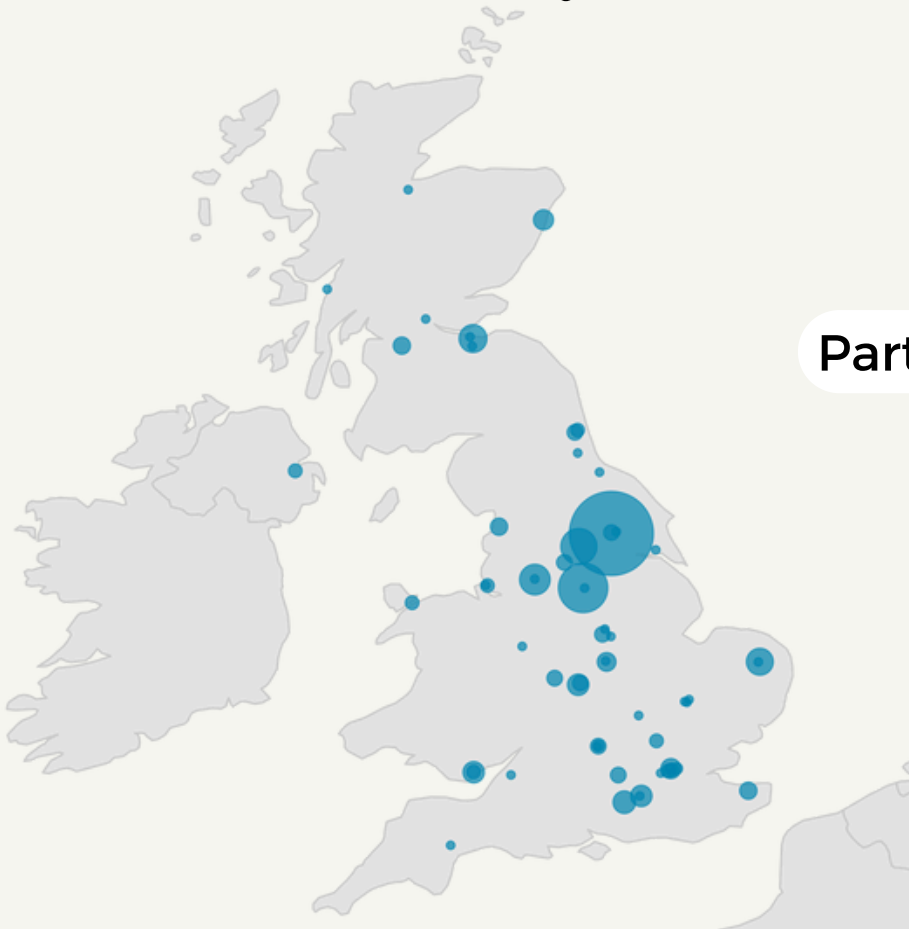
Learners a with disability

62%

Female learners

88%

Early Career

Participants

100

50
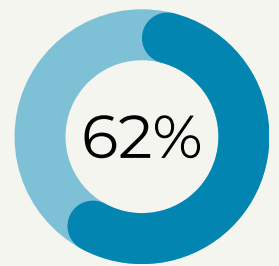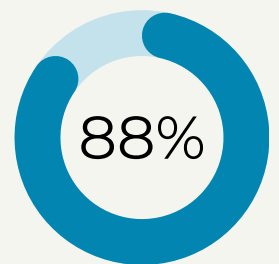
Learners were based at over 76 different universities, research institutes and companies in the UK.

Data based on registration numbers for courses and self-study modules.

TESTIMONIALS

It's a great course for R beginners and I would highly recommend it. This course introduced me to some great R packages which I am sure will be helpful for me to share my PhD research results.
Doctoral student | University of Glasgow | Core R

Really fantastic course and content. I particularly liked the background to command line, organising files etc as this is the type of thing which is hard to "know" if nobody has shown you, and is often assumed in other courses.
Genomics | Online | March 2022

The Cloud-SPAN metagenomics course is brilliant! It's free and accessible and has given me so much confidence accessing the AWS instance and using command-line bioinformatics tools. I learned loads that is really useful for future projects. The team are so friendly and professional and the whole experience was great.
Researcher | Forest Research | Metagenomics

I really enjoyed the Prenomics course. I was initially worried going into it as I was a complete beginner but the leaders were amazing at explaining everything which made for a comfortable environment to ask any questions. I will definitely be recommending this course to others!
Researcher | Deep Branch | Prenomics

I learnt a lot from this course, although some of it wasn't directly relevant to what I'm doing right now, it has been a really helpful grounding in the area, and will inform future work. I really appreciated the wealth of knowledge the team brought, their willingness to help and point to other resources, and the very fast response times on the Slack forum. Most useful for me (weirdly) was the constant direction to the --help pages when looking at new commands. This really drummed into me how to learn by myself, and have already found it a useful prompt when moving into Qiime2, and I feel more confident with understanding the format of help files, which helps me structure my commands. All in all, really excellent.
Richard | University of Kent | Metagenomics

I had a great time at the Cloud-Span retreat. I went from Lancaster just for it, and it was worth it. I got support in analysing the data I had in hand. That was really satisfying applying what we previously learned (using our data this time). Having the Cloud-Span Team around to support us was essential. It's been great learning with them, and I would 100% recommend them!
Joao | Advanced Bacterial Sciences | Code Retreat
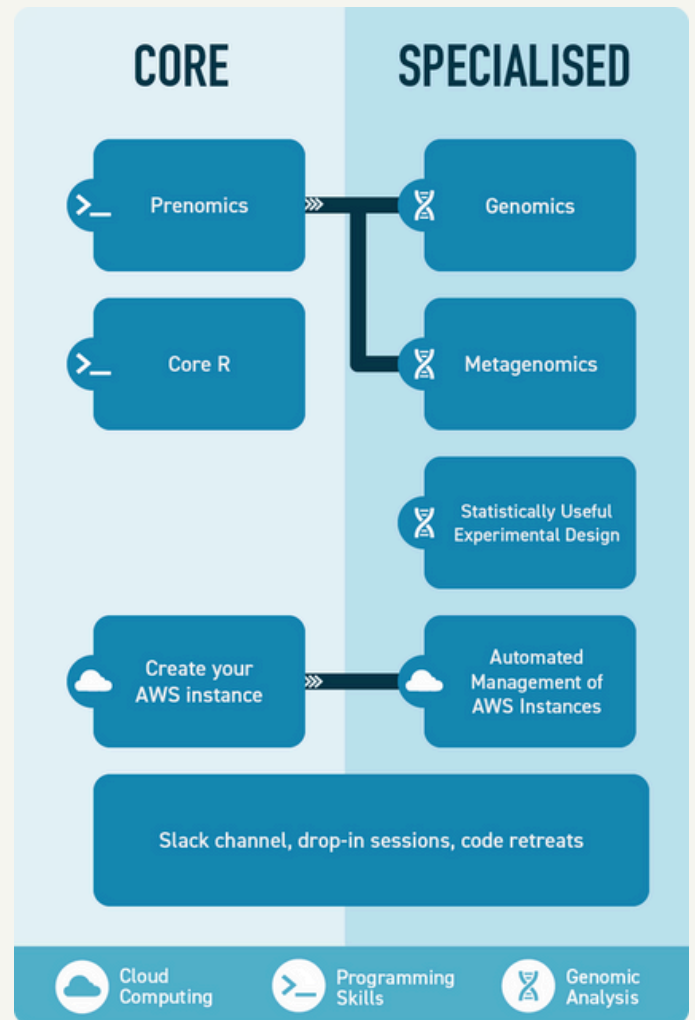
PORTFOLIO OF TRAINING RESOURCES

A structured learning path was created to ensure that the workshops complemented the learners' previous experience and knowledge base.

We recognised that for most, the idea of using the command line and accessing the cloud for the first time could be overwhelming.

Therefore careful consideration was given when creating the workshop content, ample time was given to allow learners to be introduced to new concepts and to complete practical exercises.

All workshops were supported via a dedicated Slack channel, drop in sessions and an in-person Code Retreat.

"STAY INSPIRED. NEVER STOP LEARNING."

CORE | SPECIALISED

Prenomics → Genomics

Core R → Metagenomics

Statistically Useful Experimental Design

Create your AWS instance → Automated Management of AWS Instances

Slack channel, drop-in sessions, code retreats

Cloud Computing
Programming Skills
Genomic Analysis

TRAINING

Impact

28%

Repeat attendees

99%

Reported an increase in confidence

88%

Early Career

63%

Female participants

60
Scholarships allocated

350
Participants completed activities

31
Learning events

COLLABORATIONS & PARTNERSHIPS

PUBLICATIONS & INFLUENCE ON POLICY

RESEARCH & SOFTWARE TOOLS

3

5

6

5

7

63

FURTHER FUNDING

AWARDS

ENGAGEMENT ACTIVITIES & OTHER OUTCOMES

Research Fish Outcomes

When asked about the impact of attending a Cloud-SPAN activity the words most frequently mentioned included.

worked appreciated
support difficult
knowledgeable work easy
problems good excellent
easier fine brilliant perfect
clear great confidence
confident happy
important fast friendly
split issues slow nice amazing
enjoyed helpful helped patient
fantastic breaks comfortable
recommend

Equality, Diversity and Inclusion

One of the primary aims of the Cloud-SPAN project was to create an inclusive learning environment that provides equality of opportunity for all learners, regardless of their abilities, differences or backgrounds.

Unfortunately, certain groups of people with particular characteristics e.g. disabled people, women, those of a certain race, gay and lesbian people etc., have and continue to experience discrimination in the field of programming and high performance computing. Cloud-SPAN strives to remove barriers which typically prevent members of underrepresented groups progressing or working in this domain.

WHO WE HELP

Underrepresented groups in programming and high performance computing

Including
- students from low household income or low socio-economic status
- minority ethnic groups
- mature students
- disabled students
- females
- care leavers

HOW

- Apply a Code of Conduct in sessions, in addition instructors use inclusive and encouraging language.
- No registration fees for materials and learners don't need specialised equipment or software.
- Provide scholarships for childcare and similar costs.

RESULTS

- We have achieved an inclusive learning environment
- Our learners are diverse
- Our course are impactful, learners experience an increase in confidence, knowledge and learn new skills

"

Very friendly and inclusive staff and course. Allowed everyone to learn how they felt comfortable i.e. with or without cameras or mics etc. the course content was well organised and explained.
Doctoral student | University of York | Metagenomics

I'm delighted with how the course was designed and delivered. Most of the presenters spoke really clear; they waited for you, always making sure everyone was on track. They guide you through each step, following the well-prepared material they provide each class. I was very anxious initially, thinking I would never be able to make it (maybe because of my ADHD), but it was so different, and I attribute that to the **"special way"** the course was delivered. There were times I thought I would give up and not bother them with my questions, but they made me comfortable asking, and I made the most of this opportunity. I'm looking forward to the next course.
 Please keep up with the great job!

Prenomics | March 2022

EDI data is based on responses from 143 registrations.

Learners were provided with an optional anonymous survey to provide EDI information.

46%

46% of participants were from an ethnic minority background (compared to 24% of postgraduates in 2020-21)

62%

62% of participants were female (compared to 58% of postgraduates in 2020-21)

29%

29% of participants reported having a disability (compared to 14% of adults aged 20-44 in the most recent census)

Our future goals

We have ambitious plans for the future and hope to continue to support the upskilling of researchers. We would like to implement the following;

1
Continue to champion equality, diversity and inclusion in postgraduate education

2
Create new course content to expand the researchers range of skills

3
Increase the allocation of scholarships to underrepresented groups in programming and high performance computing

4
Attract participants over a wider geographical area

5
Continue to expand our networks with other institutions and DaSH funded projects

6
Secure long-term funding

Contact us