Mathsci-comm workshop – Nov 2024

Communicating Mathematical and Data Sciences – What does Success Look Like?

- *Event page*
- *Padlet discussion*

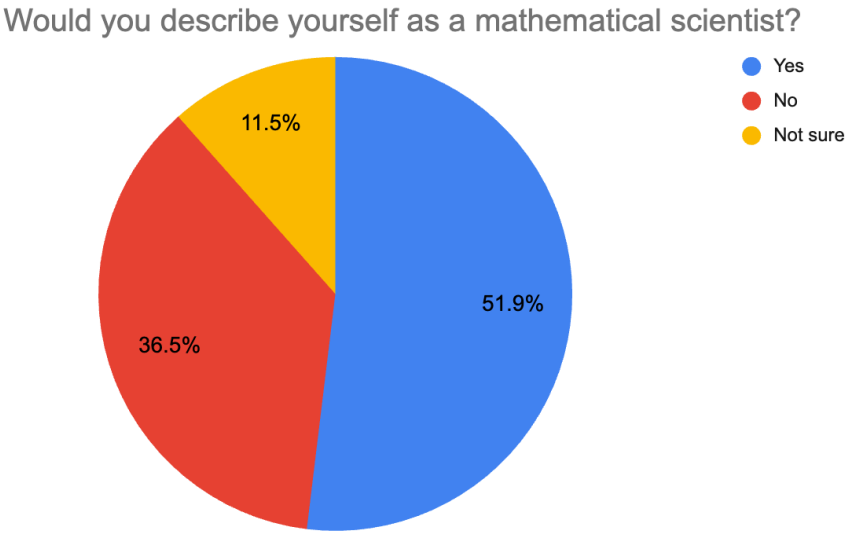
This event, as well as the Mathsci-comm network, are funded by an INI Network Grant, EPSRC grant (Ref: EP/V521929/1)

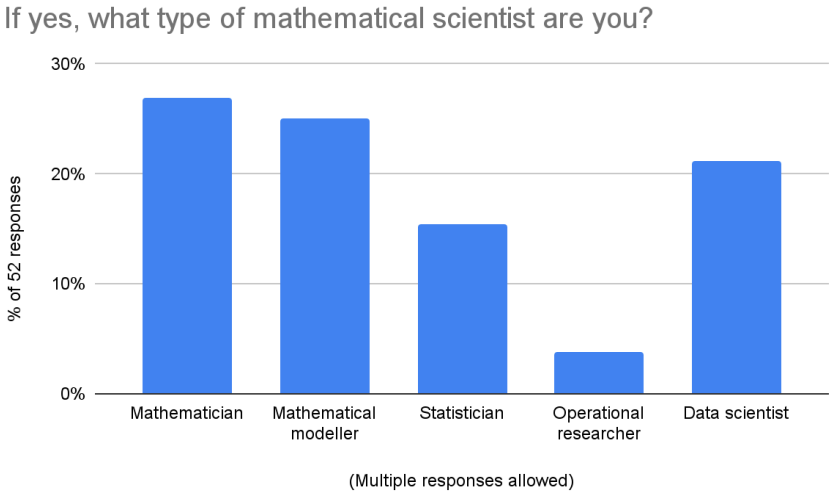
What does the Mathsci-comm network look like?

This data is primarily from the 42 feedback forms collated at the end of the workshop, alongside 10 responses to an online form by the wider network.

69 of the 89 attendees at the event were from academic institutions; 14 individuals attended from Defence Science and Technology Laboratory, Financial Conduct Authority, Office for Local Government, UK Health Security Agency, EPSRC, Office for National Statistics, The Royal Institution of Great Britain, Bank of England, National Cyber Security Centre, and the Centre for Environment, Fisheries and Aquaculture Science; and other attendees were freelance or were from commercial or third sector organisations.

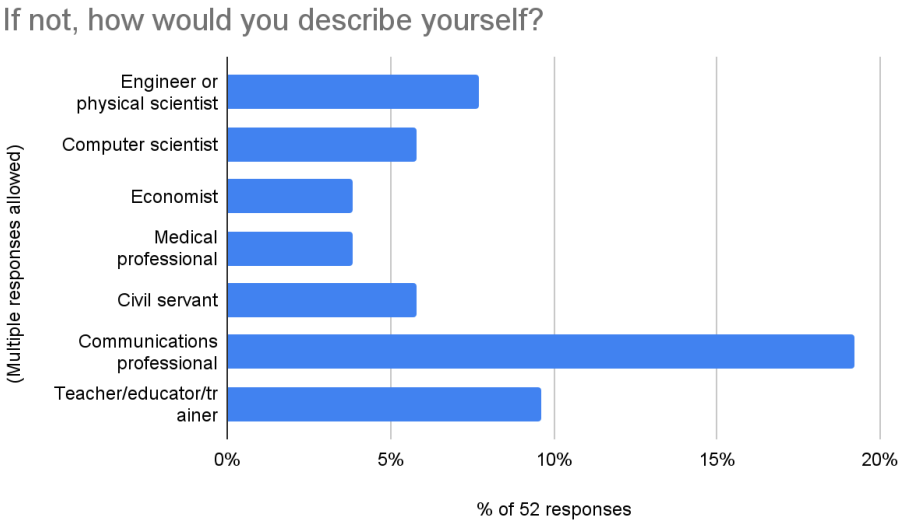
Mathematical science versus other disciplines





Other responses included:

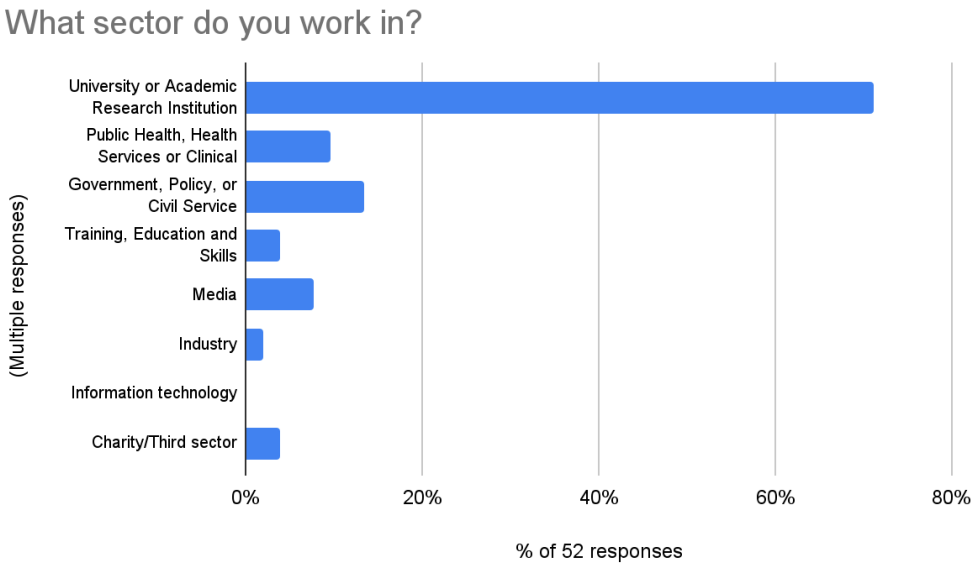
- Experimental researcher
- Maths/Science communicator
- Theoretical physicist
- Epidemiologist
- PhD Student
- Similar to a civil servant
- Modelling and policy
- Educator



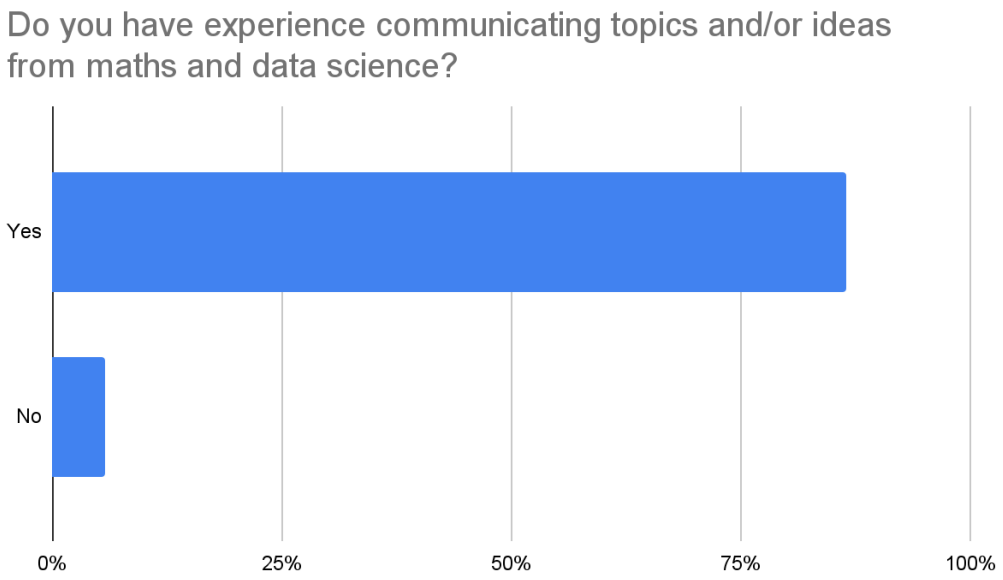
Other responses included:

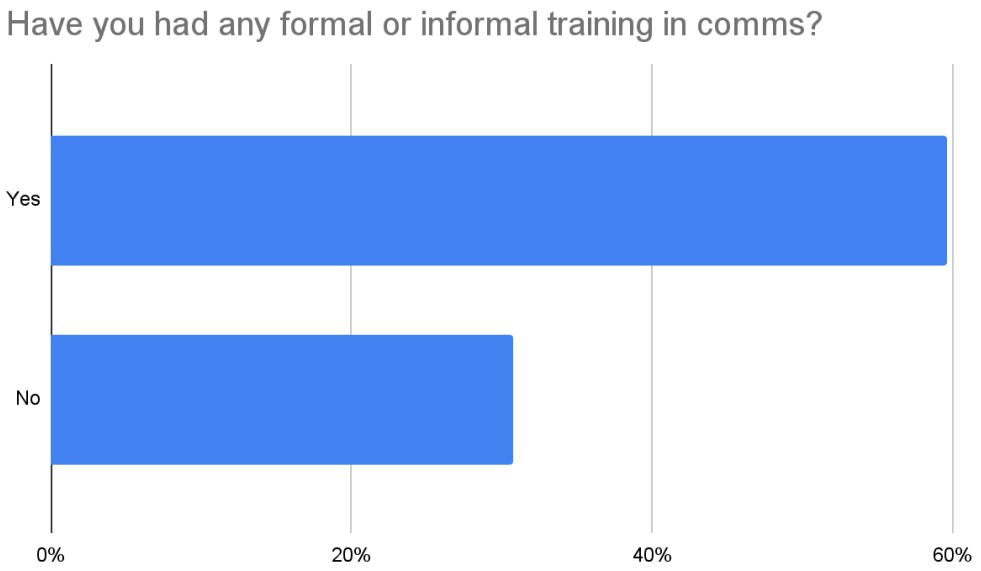
- PhD student
- Communicator

Sector



Experience and training

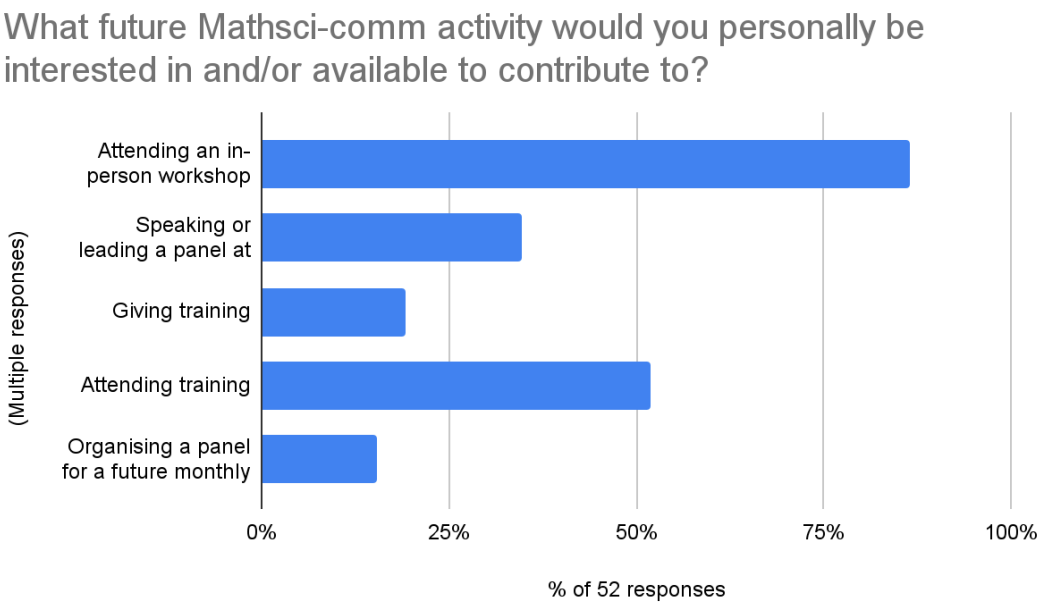




Training people reported included:

- KE Hub
- On the job training / experience / from other communicators
- Self-taught through books and other resources
- INI training workshop led by Rachel, Marianne, Katie and Ben
- Workplace training and events.
- Education as journalist
- Media, policy and leadership training
- Science Media Centre (NZ) media training course
- Past training in television presentation.
- ComSciCon, as well as many workshops and conferences.

Future activity



Wider questions

These answers were gathered from event feedback forms, blackboards used during the event, and the online form after the event.

What questions do you have about communicating maths and data science?

- What are the most effective ways of connecting people who do not have good feelings about mathematics with mathematics?
- How would you communicate mathematics differently when talking to policy and decision makers rather than the general public?
- What impact does better mathematical communication have on both the pipeline and people's sense of mathematical identity and belonging?
- What impact does better mathematical communication have on both the pipeline and people’s sense of mathematical identity and belonging?
- What are the best ways for teaching mathematicians and statisticians how to best communicate both within the Academy and outside of it?
- What role does math communication play in people deciding to study and engage in mathematical activity?
- How do you communicate maths/stats when those you are communicating to think the result will mean they lose their job?
- Who is the audience? Who is the **most important** audience?
- How do you get into it?
- Who should fund it?
- Sam's long list of research questions

- How to close the loop between quantitative work and policy needs; how to best improve two way communication with policy.
- How can we reach unengaged audiences
- What are effective ways of communicating the purposes and results of mathematical modelling
- What does public participation in mathematical sciences research projects look like and how do we do this? How do we increase public trust in mathematical modelling?
- How to know one's audience properly? How best to engage diverse audiences?
- How do I know which mathematical or data science approach is good for my analysis? If I don't know the answer to this question, how can I communicate effectively with the audience?
- What works best, how do different audiences differ in their needs from communicators and many others?
- How can we ensure a dialogue with the audience when the format is written online?

What target audience do you need to reach?

- Policymakers
- The mathematically curious
- Mainstream media
- Scientists and researchers in other fields
- Funders
- Students
- Legislators
- Teachers
- Mathematicians
- Engineers
- Children and young people (outside of school)
- Research participants
- Aspiring mathematicians
- Time poor people, science and broader media.
- Policy makers, curious non-experts, researchers. Written articles and podcasts
- Stakeholders in public health / policy (written reports, informal verbal interactions). General public (mainstream media).
- Policy makers and the general public. Plus articles, podcasts, presentations at meetings, seminars
- These days, mostly journalists, also sometimes general public. Writing, in person and remote talks.
- Schools and colleges - workshops and talks.
- General public - writing.
- NHS analysts and policy makers. Presenting in power points or presenting in a conference
- Mathematically Curious via podcasting
- Various non-expert audiences. Written online and podcast

What formats do you use?

- Written online content
- Podcasts
- Public talks

What practical help would be most useful to you in your comms work?

- How best to use social media
- Production tips and training for podcast and video
- Cross-promotion of maths talks/shows for the public
- Speakers and volunteers to help deliver Maths Masterclasses for your people (aged 9-14)
- Article writing, presentation support.
- Evaluation and impact assessment. Podcast production.
- How to guides (for example how to do visualisations, how to deal with uncertainty etc), contacts with comms experts in mathematical sciences
- Not sure
- One to one mentoring if possible
- money and a change of incentives to prioritize communication within the mathematical community.
- Social media and podcast training

What could the wider mathematical science community do to embed communication in a systematic way?

- Research showing the importance of good communication skills for the mathematical community
- Changing the incentives for promotion and tenure within the mathematical communities so that communications is something that is both expected and rewarded
- Provide funding for research into mathematical communications and for positions both for mathematical communication practitioners and trainers
- Who is this community? (Who is a mathematician?)
- Help with confidence of young girls who like maths
- Outreach in schools
- Support comms projects at the faculty level
- Embed in workloads
- Highlight the need for communication in early career, and repeat the message often!
- Learned societies and research organisations should have a strategy for supporting the communication of their members work.
- Think about how we include in grant funding and training for early career researchers. Conduct research on how best to communicate mathematical concepts to the public.

- Make deeper understanding of it, and experience in it, a more important part of postgrad training - not just communicating to mathematical audiences, but also (e.g.) two way communication with experts in other areas for collaboration, consultancy and so on.
- I'm sorry, I'm finding it hard to know what to say for these questions!
- Cluster in various groups based on interest and knowledge/ working area and then community in more specific topics. For example, I am interested in how I can use London Ambulance data to predict ambulance demand. I am not interested in how people communicate with domains such as criminology analysis.
- reward and prioritize communication within the mathematical career.
- Develop coherent comms strategies

Acknowledgements

This document was produced with the participants of the Mathsci-comm workshop, *Communicating Mathematical and Data Sciences – What does Success Look Like?*, alongside members of the wider Mathsci-comm network. The workshop was held in November 2024 at the Isaac Newton Institute for Mathematical Sciences, organised with the Newton Gateway to Mathematics, and supported by an INI Network Grant.

This document was written by Rachel Thomas and Marianne Freiberger, with contributions from the following:

Shuaib Ahmed
Ajay Bater
Duncan Bradley
Celine Broeckaert
Eleanor Burch
Nigel Campbell
Kaili Clackson
Lisa Curtis
Luke Davis
Long Tung (Miranda) Ding
Helena Earl
Jessica Enright
Eleanor Fallon
Elizabeth Fearon
Julia Gog
Liza Hadley
Sam Hansen
William Kay
Joanne Kenney
Anna Khoo
Unni Irmelin Kvam
Lindsay Lee
Vinesh Maguire-Rajpaul
Katherine Mathieson
Michael McMahon
James Millar
Justin Mullins
Matthew Naylor
Rachel P
Kat Phillips
Tim Rooker
Megan Ruffle
Ameer Ali Saleem
David Schley
Jordan P Skittrall
Ann Smith