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Professional development training for researchers

Nature Masterclasses aims to build the skills, confidence, and careers of researchers by drawing on the expertise of high-profile Nature Portfolio journal editors, leading researchers in academia and industry, and funders.

On-demand training courses

Our curriculum covers a broad range of skill sets that researchers need at every stage of their careers, with new courses being added every year.

Scientific Question	Hypothesis and grant proposals	Experiments and analysis	Publications and dissemination	Building your career
Experimental design ✲	Persuasive Grant Writing	Effective Collaboration in Research	Scientific Writing and Publishing	Networking for Researchers
	Finding your Grant and Funder ✲	Managing Research Data	Narrative Tools for Researchers	Finding a job ✲✲
		Data Analysis: Planning and preparing	Advancing Your Scientific Presentations	
		Data Analysis: Conducting and Trouble-shooting ✲	Focus on Peer Review	
		Interpreting Scientific Results ✲	Networking for Researchers	

✲ Launching in 2022
✲✲ Launching in 2023

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On-demand training courses

To accommodate researchers' busy schedule, our training is self-paced, bite-sized, and on demand.

10–15
minute lessons

Accessible
on mobile devices

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Index of course modules and lessons

Scientific Questions

Experimental Design
To be published in 2022

Hypothesis and Grant Proposals

Persuasive Grant Writing
3-module course, 3.5 hours total

Before starting your grant application
- Welcome to the course
- Why are many grant applications not funded?
- Why use narrative tools when writing a grant application?
- The format of grant application and the purpose of its sections
- Module summary

Targeting your audience
- Introduction
- Why should you understand your funder?
- How to research your funder?
- Create a message that is relevant to your funder
- Module summary

Creating a narrative
- Introduction
- Support your key message
- Select the characters of your grant application
- Create a narrative structure within your sections
- Tell your research story throughout the entire application
- Module summary
- Course summary

Finding your Grant and Funder
To be published in 2022

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Experiments and analysis

Effective Collaboration in Research
5-module course, 8 hours total

Why collaborate?
- Welcome to the course
- The rise of collaborations
- Different types of collaboration
- Benefits and challenges of collaboration
- Working with industry
- Use collaborations to reach your goals
- Module summary

Being an effective collaborator
- Working in a new research team
- Keeping the project on track
- Tools to collaborate
- Leveraging your collaborative experience
- Troubleshooting tips for new collaborators
- Module summary

Initiating and leading a collaboration
- Do you need a collaboration?
- How to choose your collaborators
- How to approach potential collaborators
- Effective leadership for collaborations
- Setting up a collaboration framework
- Establishing a code of conduct
- Creating the project schedule
- Planning your resources
- Legislation, guidelines and policies
- Funding for collaborations
- Module summary

Running and troubleshooting a collaboration
- Maintaining engagement
- Keeping the project on track
- Interpersonal and personnel issue
- Ethical issues
- Funding and resource
- Module summary

Outputs and next steps
- Defining 'output', 'value' and 'impact
- Collaborative research outputs
- Publishing your results: authorship and writing
- Publishing your results: submission and review
- The value of research outputs
- Assessing and communicating impact
- Ending a collaboration
- Next steps
- Module summary

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Experiments and analysis

Managing Research Data
4-module course, 5 hours total

Welcome and introduction
- Welcome to the course
- Key concepts
- Why data management matters
- Complying with relevant data policies
- Module summary

Creating and maintaining your data management plan
- Introduction
- Preparing to create a DMP
- Creating a DMP
- Module summary

Managing data in the short and long term
- Introduction
- Storing data for the short term
- Choosing file formats and data storage
- Organising and naming your data files
- Collecting rich and comprehensible metadata
- Checking the quality of your data
- Storing data for the long term
- Module summary

Sharing your data
- Introduction
- What to share, when and with whom?
- Setting terms for access and use of your data
- How to share your data
- Sharing your data in a repository
- Module summary
- Course summary

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Experiments and analysis

Data Analysis: Planning and preparing
2-module course, 3 hours total

Introduction to Data Analysis and the importance of planning
- Welcome to the course
- Key concepts in data analysis
- Why planning data is important
- Challenges in data analysis
- Challenges in preparing and planning your data analysis
- Creating a data analysis plan
- Module summary

Preparing your data for analysis
- Introduction
- Collate your analytic dataset
- Quality check your analytic dataset
- Preliminary analysis: Explore your data
- Module summary
- Course summary

Data Analysis: Conducting and Troubleshooting
3-module course, 5 hours total

Introduction to Data Analysis
- Welcome to the course
- Key concepts in data analysis
- Why is effective data analysis important?
- Challenges in data analysis
- Module summary

Exploring your data and reviewing your analysis plan
- Introduction
- Explore your data numerically
- Explore your data visually
- Review your data analysis options and plan
- Module summary

Analysing your data
- Introduction
- Analyse your data and test your hypothesis
- Confirm and troubleshoot analyses
- Present your findings and express limitations
- Module summary
- Course summary

Interpreting Scientific Results
To be published in 2022

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Publication and Dissemination

Scientific Writing and Publishing
3-part course, 15-modules, 11 hours total

What makes a great paper?
- Why publish your research?
- Starting to write and using storytelling to craft your paper
- What do editors look for in a great paper?
- There is no magic formula to writing a great paper
- Editors' favourite papers
- Frequently asked questions
- Module summary

Elements of writing style
- The ABC of effective writing
- Common issues in writing style
- Knowledge check: Effective writing
- Building a paragraph
- Frequently asked questions
- Module summary

Titles and abstracts
- How to reach your audience
- The value in crafting a great title
- How to write effective titles
- Things to avoid in titles
- Knowledge check: Identify an effective title (life sciences example)
- Knowledge check: Identify an effective title (physical sciences example)
- Choosing keywords for your paper
- How to write an abstract
- Things to avoid in abstracts
- Knowledge check: Improve an abstract
- Module summary

From introduction to conclusion
- Writing a paper: The big picture
- Writing the introduction
- Writing the methods section
- Writing the results section
- Data deposition
- Writing the discussion section
- Writing the combined results and discussion section
- Writing the conclusion
- Things to avoid: Overhyping your work
- Knowledge check: Write a paragraph!
- Frequently asked questions
- Module summary

Data management
- Managing data
- Risks of data mismanagement
- Creating a data management plan
- The importance of sharing data
- Meaningful metadata
- Sharing data
- Poll: How do you access and share data?
- The rise of data journals
- Knowledge check: Data ownership
- Frequently asked questions
- Module summary

Data presentation
- Principles of data presentation
- Determine your main message
- Find the best format for your data
- Knowledge check: Box plot or bar chart?
- Organize your data
- Choose a representative image
- Visual clarity
- Use colour wisely
- Frequently asked question
- Module summary

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Publication and Dissemination

Narrative Tools for Researchers
3-module course, 4 hours total

Why use a story?
- Welcome to the course
- Why use narrative tools to communicate your research?
- How can stories advance your research and career?
- Why are stories powerful?
- What makes a story?
- Module summary

Building your story
- Introduction
- Identify your key message
- Back up your key message
- Choose a structure for your story
- Build your characters
- Help the audience along
- Put the pieces together
- Module summary

Refining your story
- Introduction
- Understand your audience
- Adapt to your audience
- Plan for constraints
- Edit your story
- Module summary
- Course summary

Advancing Your Scientific Presentations
4-module course, 8 hours total

Overcoming your research presentation challenges
- Welcome to the course
- Identify the benefits of giving effective presentations
- Tailoring to your audience can focus your presentation
- Use narratives tools to communicate your research story
- Module summary

Developing the story behind your talk
- Introduction
- Identify your key message
- Select the evidence to support your key message
- Identify your characters
- Choose and use a narrative structure
- Bring the elements of your story together
- Module summary

Building an engaging slide deck
- Introduction
- Create the outline of your slide deck
- Set up your slide deck
- Craft your components: Pitfalls, principles and text
- Craft your components: Visual and interactive elements
- Refine and review your slide deck
- Module summary

Preparing and navigating your talk
- Introduction
- Prepare the practicalities of your talk
- Prepare and rehearse your talk
- Prepare for Q&A

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Publication and Dissemination

Focus on Peer Review
4-module course, 4 hours total

Your role as peer reviewer
- The peer review process
- The importance of peer review
- The benefits of being a peer reviewer
- Peer reviewer's responsibilities
- The reasons why I peer review
- Deciding whether to peer review a paper
- Experiences of peer review
- Routes to becoming a peer reviewer
- Module summary and next steps
- Useful links and further reading

The peer review report
- What do you think of this report?
- Preparing to review
- Review strategies
- First impressions of the paper
- How I approach peer review
- The review: Titles, abstracts & introductions
- The review: Methods
- The review: Results and discussion
- The tone of your report
- The structure of your report
- Major and minor points in a review paper
- Writing a summary for a peer review report
- Common problems during peer review
- Frequently asked questions
- Module summary and next steps
- Useful links and further reading

Ethics in peer review
- Which of these actions is ethically questionable?
- Peer review ethics
- Conflicts of interest in peer review
- Intellectual theft and plagiarism in peer review
- Implicit bias in peer review
- Confidentiality in peer review
- Why peer review gets a bad press
- Knowledge check: Potential issues when peer reviewing
- Module summary and next steps
- Useful links and further reading
- Module summary and next steps
- Useful links and further reading

Variations and innovations in peer review
- Types of peer review
- Registered reports
- Different journals' requirements
- Variations in peer review practices
- Knowledge check: Reviewing large data sets
- Peer reviewing a review paper
- Innovative approaches to peer review
- Peer review: Where next?
- Module summary and next steps
- Useful links and further reading

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Building your career

Networking for Researchers
4-module course, 4 hours total

Why Network?
- Welcome to the course
- Networking challenges and conversations
- Why network
- Networking opportunities
- Module summary

Getting ready to network
- Introduction
- Articulate your professional identity
- Build your online presence
- Do your research
- Prepare your pitch and your questions
- Module summary

Connect with networking contacts - in person and online
- Introduction
- Reaching out to a new contact
- Crafting your communications for maximum effect
- Meeting in person
- Meeting online
- Making the most out of chance encounters
- Module summary

Nurturing and harnessing the power of your network
- Introduction
- Harness the immediate power of your network
- Nurture your network for the future
- Module summary
- Course summary

Finding a job
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