

# Why Open Science

Science is not  
working as it  
should be

- Slow, wasteful, locked away
- Ruled by commercial interests
  - Reproducibility crises
- Questionable research practices
- Closed science means people suffer



# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



**We need science if we are going to help quickly and sustainably solve these**

# Our vision of the future

## **To help make ‘Open’ the default setting for all global research.**

We want to help create a welcoming and supporting community, with good tools, teachers, and role-models, and built upon a solid values-based foundation of freedom and equitable access to research.

# The way we do research has changed for good

We now have new expectations

**Transparency**

Not secrecy

**Collaborative**

Not solo

**Continuous**

Not discretised

# We should be training ourselves

- Sustained community engagement across disciplines
- Being active both politically and at a community level
  - Rethinking our mindset
  - Changing the incentive system

# How do we get to where we want?

Imagine a future defined by the values of Open Science:

- **Freely available public good**
- **Rigorous and reproducible**
- **Open to ALL**
- **Isn't that just GOOD science?**

The best researchers have already  
reinvented themselves into  
Openness

**We need everyone to be collaborating together  
if we are going to help solve the challenges  
humanity faces.**

#OpenScience

@OpenScienceMOOC

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SCIENCE  
MOOC  
FREE | OPEN | LEARNING

# How do we fit in?

- **Community**
- **Common values**
- **Collaboration not competition**



# Introducing the Open Science MOOC

A **peer-to-peer** value-based **community** that  
works towards better **science for society**

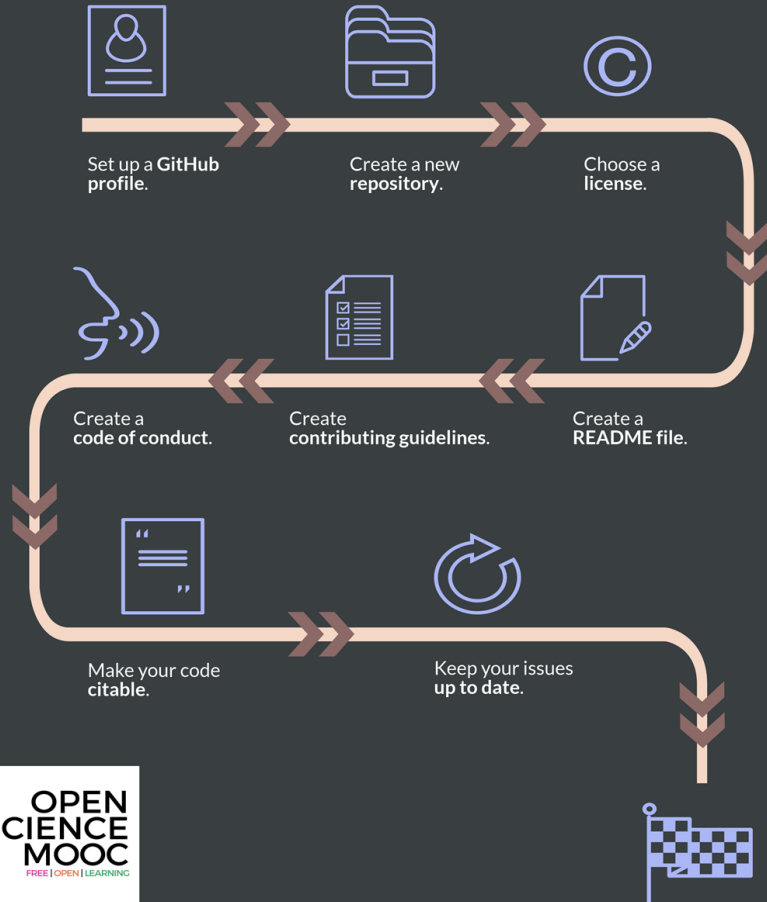
# What do researchers care about?

- **Saving time and effort**
- **Problem solving**
- **Advancing research**

We give them the **knowledge** and **skills** to do  
this

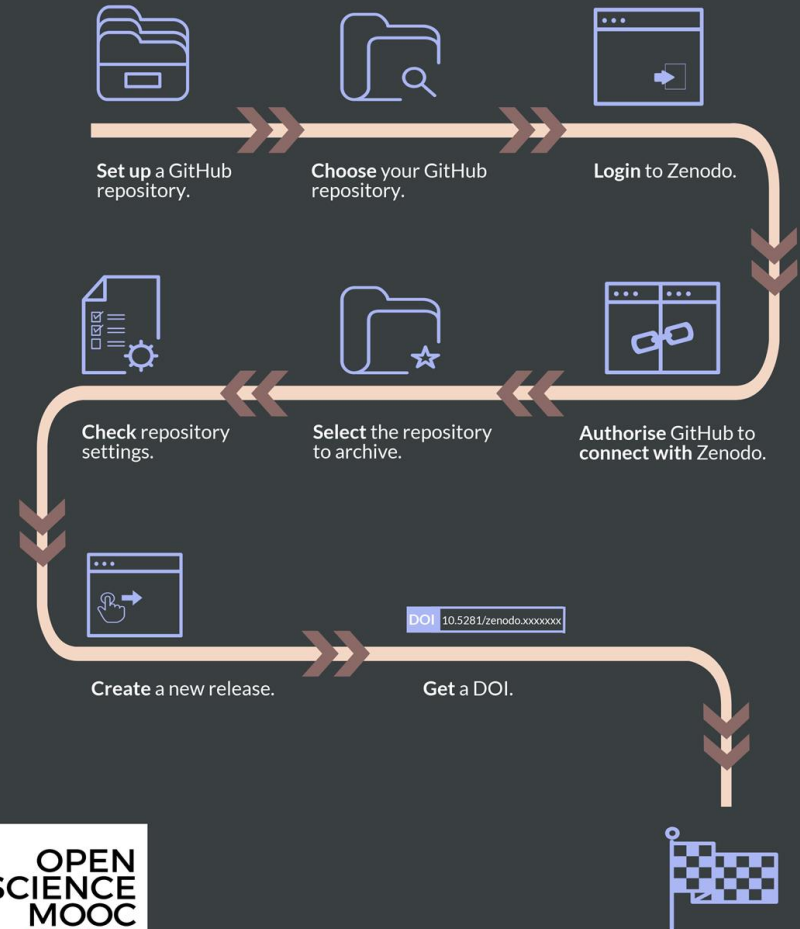
# Task 1

## Getting started with GitHub



# Task 2

## Making your code citable with Zenodo.



# Open for re-use

STATUS:

LIVE! This module is now online and ready to go via [Eliademy](#).

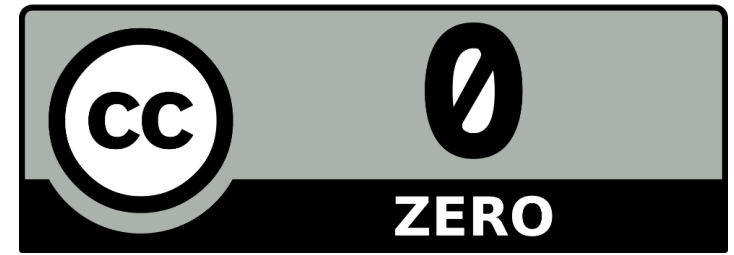
The second release for this module is now also ready, and has been published on Zenodo:

Version 2: DOI [10.5281/zenodo.1434288](https://doi.org/10.5281/zenodo.1434288)

Version 1: DOI [10.5281/zenodo.1325081](https://doi.org/10.5281/zenodo.1325081)

To cite this work, please use the following reference:

Tennant, J. et al. (23/09/2018) Open Science MOOC: Module 5, Open Research Software and Open Source (Version 2.0) Zenodo.  
<http://doi.org/10.5281/zenodo.1434288>



## In markdown format

- [MAIN CONTENT](#) - The main content for this Module.
- [TASK 1](#) - How to set up your first repository on GitHub.
- [TASK 2](#) - How to make your code citable using GitHub and Zenodo.
- [TASK 3](#) - How to integrate Git with RStudio.

## In iPython notebook format

Note: These are best viewed in Jupyter for full functionality, as opposed to the GitHub viewer

- [MAIN CONTENT](#) (click [here](#) to view)
- [TASK 1](#) (click [here](#) to view)
- [TASK 2](#) (click [here](#) to view)
- [TASK 3](#) (click [here](#) to view)

## In PDF format

- [MAIN CONTENT](#)
- [TASK 1](#)
- [TASK 2](#)
- [TASK 3](#)

## In HTML format

- [MAIN CONTENT](#)
- [TASK 1](#)
- [TASK 2](#)

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# OPEN RESEARCH SOFTWARE & OPEN SOURCE



Jon Tennant  
Founder



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## Module 5: Open Research Software and Open Source

Content Webinars Tasks Gradebook Discussions Participants Certificate Settings

Overview

Introduction

Main 1: Open Research Software  
and Open Source



Main 2: Open Research Software  
and Open Source



Main 3: Open Research Software  
and Open Source



+ New Topic

### Overview

Edit



# OPEN RESEARCH SOFTWARE & OPEN SOURCE

#### Rationale:

Software and technology underpin modern science. There is an increasing demand for more sophisticated open source software, matched by an increasing willingness for researchers to openly collaborate on new tools. These developments come with a specific ethical, legal and economic challenges that impact upon research workflows. This module will introduce the necessary tools required for transforming software into something that can be openly accessed and re-used by others.

<https://eliademy.com/catalog/catalog/product/view/sku/02d7338a7e>

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# A fully interactive learning style

This allows learners to actually edit the MOOC content for this module. **Nice.**

Learning is based on **participation** and **collaboration**.

## OPTIONAL ADVANCED/AWESOME STEP

Alright, so you just pushed some content to your first repo, awesome! Now let's put it into practice for a real project. Like, the one you are participating in right now. Let's try this out:

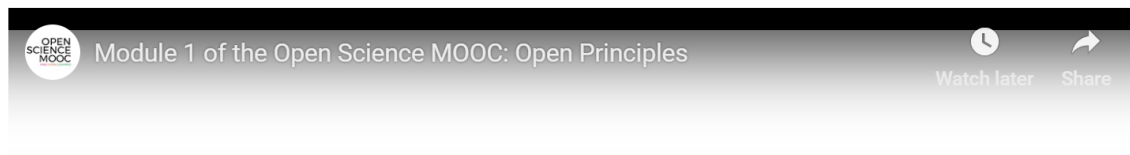
1. Go to the repositories for this project on [GitHub](#)
2. Fork the repository to your own GitHub account. The URL for this should be:  
`https://github.com/OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source.git`
3. Head into RStudio, go to **File > New Project**, choose *Version Control*, select *Git*, and then paste the forked repository URL found in your copy of the repository. You now have your own versioned copy of this whole module. Neat. Save this somewhere on your local machine.
4. Now, you need to tell Git that a different version of this project exists. Open up the *Shell*, and enter the command: `git remote add upstream https://github.com/OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source`
5. What you just did was name the original branch here `upstream`, just to keep things simple for now. Now, create a new **branch** to document your changes to this independent of the main branch. Enter the command: `git checkout -b proposed-changes master`
6. You just created a new branch called `proposed-changes` where you can now edit all of the content and files to your heart's delight. Hopefully, the structure of this project is simple enough for you to navigate around. All of the raw files for the MOOC can be found in the `content_development` folder, and this is `Task_3.md`.
7. If you scroll to the bottom of `Task_3.md`, you should see a place where you can edit in your name and affiliation. Add these in, and then go through the commit procedure detailed above. If you see anything else that needs editing too, feel free to add them in too!

# Way more than just an online course

We want to build more than a tool, a platform or a service.

We are committed to build an open and inclusive community!

Go check out our Module 1 on Open Principles, starring real #OpenScience heroes



This is **Module 1** of the [Open Science MOOC](#). This course is totally **SELF-PACED**, meaning it can be completed whenever you want and in your own time.

**Rationale:** To innovate in a field frequently implies moving against prevailing trends and cultural inertia. Open Science is no different. No matter how convinced you are, you will come across resistance from peers and colleagues, and the best defence is strong personal conviction that what you are doing may not be perfect now, but is the right decision in the long run. This module will introduce the guiding principles of the 'open movement', the different actors involved, and the impact that they are having.

# Modular learning



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# Open for re-use

Open Research Software and Open Source

## Open Research Software and Open Source

**STATUS:** The first release for this module is now ready, and has been published on Zenodo:

DOI [10.5281/zenodo.1325081](https://doi.org/10.5281/zenodo.1325081)

To cite this work, please use the following:

Tennant, J. et al. (01/08/2018) Open Science MOOC: Module 5, Open Research Software and Open Source (Version 1.0) Zenodo. <https://doi.org/10.5281/zenodo.1325081>

**Rationale** Software and technology underpin modern science. There is an increasing demand for more sophisticated open source software, matched by an increasing willingness to share research tools. These developments come with a specific ethical, legal and economic challenges that impact upon research workflows. This module will introduce the necessary tools and concepts that can be openly accessed and re-used by others.

### Learning outcomes

- The researcher will be able to define the characteristics of open source research software, and the ethical, legal, economic and research impact arguments for and against open source.
- Based on community standards, researchers will be able to describe the quality requirements of sharing and re-using open code.
- The researcher will be able to use a range of research tools that utilise open source software.
- Individual researchers will be able to transform code designed for their personal use into code that is accessible and re-usable by others.



# We are not alone



# Some of our Production Team

## Production team



Alex Morley

Open Sourceror  
UK



Bastian Greshake Tzovaras

Participatory scientist  
Berkeley, CA, USA



Bruce Caron

Culture Work Architect  
USA



Daniel S. Katz

Open Source Collectivist  
USA



Danny Colin

Webdev Wizard  
Canada



Dr. Gareth O'Neill

Language Lubber  
Amsterdam



Jo Havemann

Research in Africa Highlighter  
Germany



Dr. Kevin M Moerman

Open Sourceror  
USA



# We are guided by passion

## Steering committee



Bianca Kramer  
Steering Committee  
Netherlands



Bruce Becker  
Steering Committee  
Italy



Chris Hartgerink  
Steering Committee  
Netherlands



Dr. Christopher Madan  
Steering Committee  
UK



Ivo Grigorov  
Steering Committee, Open Source Robin  
Denmark



Dr. Jonathan Tennant  
Founder, Rogue Scientist  
Rest of World



Dr. Julien Colomb  
Steering Committee  
Germany



Lisa Matthias  
Steering Committee  
Germany



Monika Schlatter  
Steering Committee  
Switzerland



Nicolas Schmelling  
Steering Committee  
Germany



Paola Masuzzo  
Steering Committee, Open Source Batman  
Italy



Ricardo Hartley  
Steering Committee  
Chile



**Open MOOC-ers** ▾

○ jon.tennant

📁 All threads

---

Starred

# steering

---

Channels

# events

# funding

**# general**

# introductions

# module1principles

# module3-repro-res

# module5opensource

# moocdularity

# platform

# promotion

# random

# researchers\_oath

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Direct Messages

♥ slackbot

○ jon.tennant (you)

♂ brucec

○ chjh

♂ Danny Colin

○ Flavio Azevedo

## #general

☆ | 👤 225 | 🔒 2 | <https://opensciencemooc.github.io/site/>



🔍 Search



Monday, September 3rd



**jon.tennant** 2:22 PM

How's everyone doing after a nice weekend? 😊

Today, I'm gonna be working on improving the style and language of these files: [https://github.com/OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source/tree/master/content\\_development#in-markdown-format](https://github.com/OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source/tree/master/content_development#in-markdown-format) Does anyone have any suggestions they would like to see?



GitHub

[OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source](https://github.com/OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source)



Module 5: Open Research Software and Open Source. Contribute to OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source development by creating an account on GitHub.



**dasaptaerwin** 2:24 PM

Hi @jon.tennant I'm on my way to OpenUp meeting in Brussel. :). Good luck with the OpenMOOC. Indonesia Open Science Team has put it as one of important reference in promoting openscience in Indonesia.



2



**jon.tennant** 2:58 PM

Oh, fantastic! Congratulations again on winning the award to get there. I hope it's a great conference 😊

And thank you for your ongoing support of the MOOC 😊



**Egon** 6:05 PM

for Module 5, the bits with tasks about setting up GitHub... what is the URL of the live online version? I can only find the GitHub repo pages for these pages...



**jon.tennant** 8:41 PM

The live version isn't quite up yet

But you can run them as jupyter notebooks which look kinda cool



**eolson** 11:02 PM

joined #general.



Message #general



<https://openmooc-ers-slackin.herokuapp.com/>

**Skeptical? You should be.**

But it's not as new as you think.

**Science was founded on openness.**

**We closed it down.**

**It's time to open it up again.**

# Status

- **In development**
- **550** Slack community members
  - **6000** Twitter followers
  - **45** strategic partnerships
- **615** people enrolled in Module 5 and **100** in Module 1
  - Agile development so people are already using content
    - Iterative feedback is our design



# What people say of the MOOC



**Danny Kingsley**  
@dannikay68

VIDEO - introductory video that now online for the Open Science MOOC: [youtube.com/watch?v=1fwGli...](https://www.youtube.com/watch?v=1fwGli...) It is great, has different people talking about real experiences they have had with Open Source software. Engaging and interesting.



Module 5 of the Open Science MOOC: An introduction to Open...  
Learn more about the Open Science MOOC and join the community here: <https://eliademy.com/catalog/oer/module-5-...>  
[youtube.com](#)



**Hollie Marshall**  
@MooHoll

Well worth a look for anyone wanting to share their code (which hopefully is everyone in science now-a-days) but not sure where to start. Easy to follow and has genuinely changed my workflow! [#openscience](#) [#opencode](#) [#genetics](#) [#epigenetics](#) [#evolution](#) [#phdchat](#) [#phdlife](#) [#bumblebees](#)



**Julia Eberlen**  
@JuliaEberlen

This looks absolutely brilliant and 100% like what I \*wish\* had existed in the beginning of my PhD: Learn how to actually do open science!



**Open Science MOOC** @OpenScienceMOOC · Dec 10, 2018

Why not get your week off to a great start by enrolling in our free online training course?



**OPEN**  
**RESEARCH SOFTWARE**  
& OPEN SOURCE



**Lisa Matthias**  
@l\_matthia

Thanks to the [@OpenScienceMOOC](#), I'm a little less clueless about GitHub and the publisher OA portfolios got a DOI now too! [github.com/lmatthia/publi...](https://github.com/lmatthia/publi...)  
[#openscience](#)



How do you want to shape your  
identity as a scientist?

**Researchers can be world-changing heroes**  
**We will give them the power to achieve that**

# Help science work for society again

## **People not profits!**

Students, teachers, journalists, bloggers, startups,  
entrepreneurs, policymakers, citizen scientists,  
NGOs, charities, health practitioners.

## **We are here for you.**



Melanie Imming, & Jon Tennant. (2018, June 8). Sticker open science: just science done right. Zenodo. <https://zenodo.org/record/1285575>

# Thanks!

- **GitHub:** <https://github.com/OpenScienceMOOC>
- **Website:** <https://opensciencemooc.eu>
- **Twitter:** [@OpenScienceMOOC](https://twitter.com/OpenScienceMOOC)
- **Email:** [info@opensciencemooc.eu](mailto:info@opensciencemooc.eu)

 **CODE OCEAN**



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