

EBE Coding Club

Owen Middleton, George Balchin, Ellie Rotheray



Agenda

- Introduction (mainly for Master's students) (20 mins)
- Quick example of running through code (10 mins)
- Introduction to the Google Sheet (5 mins)
(https://docs.google.com/spreadsheets/d/1XllqjvRFsqNQNIqvZIBernd_pKca1xUAxY15ILO0d8A/edit?usp=sharing)
- Informal discussion about what to do with the club (20 mins)



Introduction



We all like animals...



We all like animals...



Masters courses

- [Animal Behaviour MRes](#)
- [Conservation Biology MRes](#)
- [Evolutionary Biology MRes](#)
- [Global Biodiversity Conservation MSc](#)

We all like animals...so why coding?



We all like animals...so why coding?

- Arguably the most important skill to learn for your career.
- “Importantly, the **demand for programming skills has doubled in 2018 compared to that of 2006**. There is no indication that the increase in need for programming and data skills has slowed or will slow anytime soon. The doubled demand in programming skills in the job market not only deserves broad attention, but also provides the foundations for actions to address this increasing need. **Early career ecologists should be aware of the shifted expectations in skill sets and the form of work. The training of the desired skillsets should be implemented in the education system of colleges and universities.**”

Making this knowledge mainstream

Dr. Stephanie Schuttler

18.2K Tweets

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GETTING A JOB IN
WILDLIFE BIOLOGY

*What It's Like and
What You Need to Know*

Dr. Stephanie Schuttler

@FancyScientist

I help aspiring wildlife biologists chose their unique path to flourish in their career, and educate people on animals and conservation 🌿 My book is out! 📖

📍 Raleigh, NC 🔗 stephanieschuttler.com/why-im-writing... 📅 Joined April 2009

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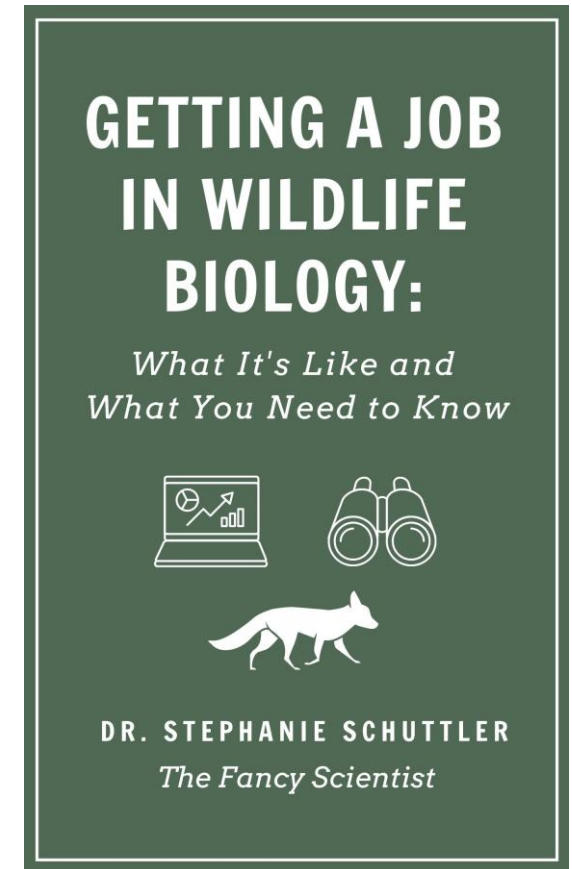
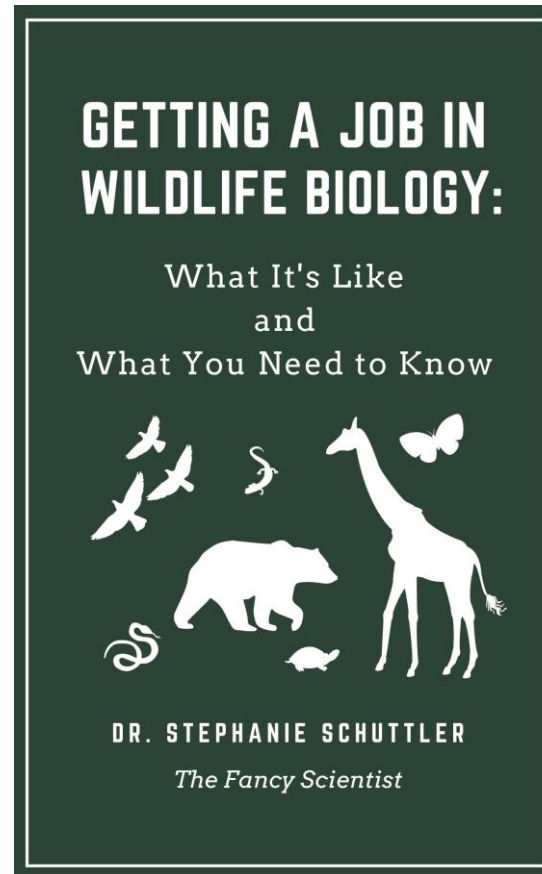
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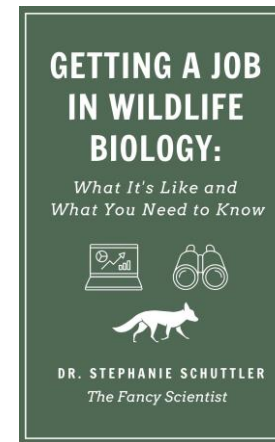
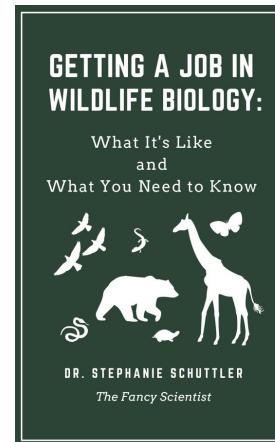
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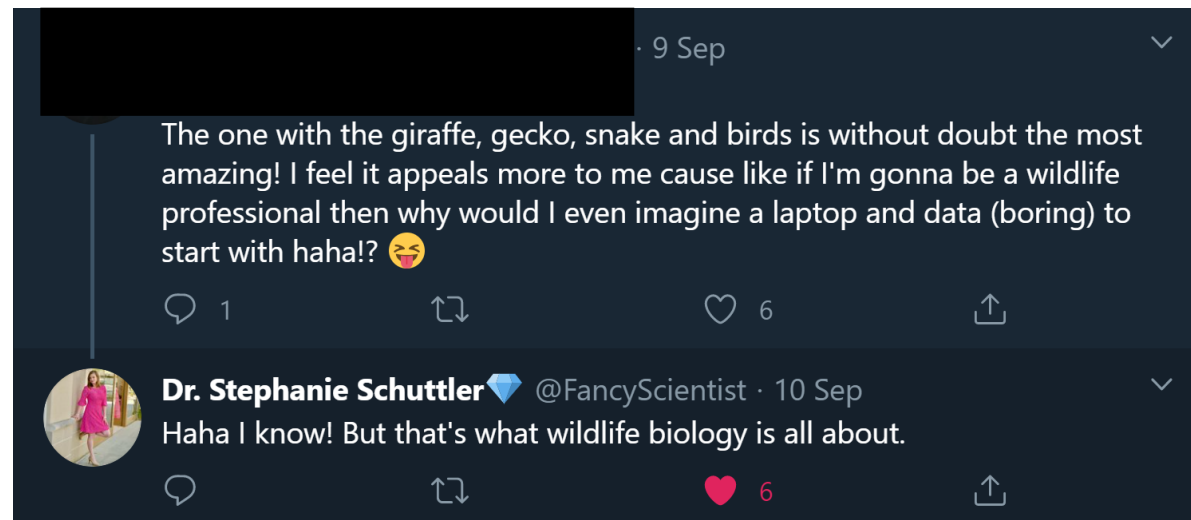
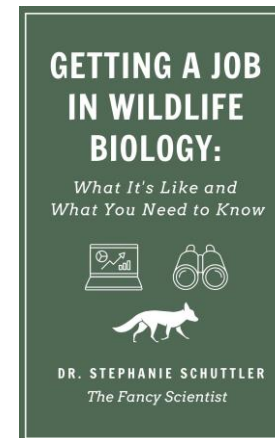
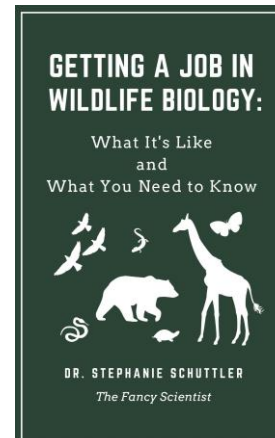
Follow



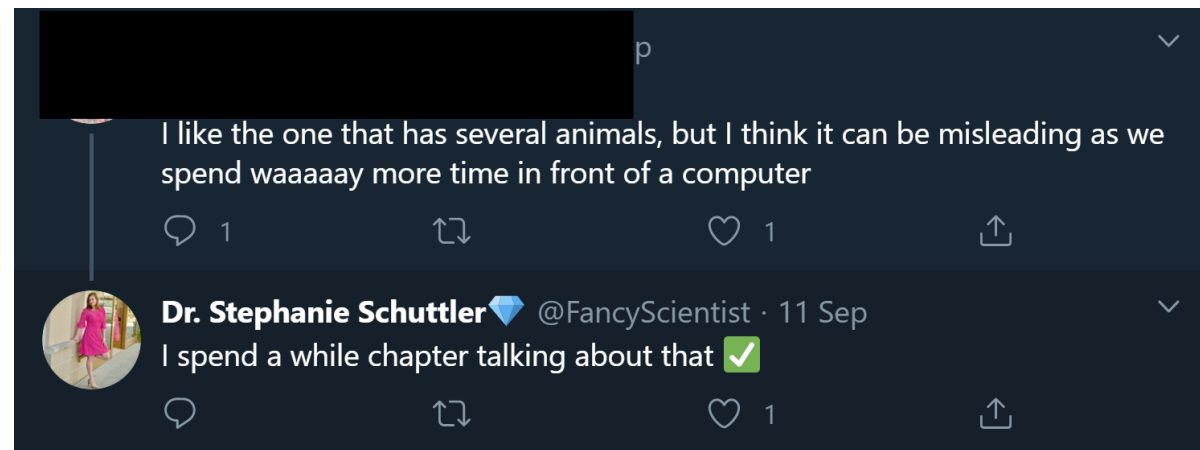
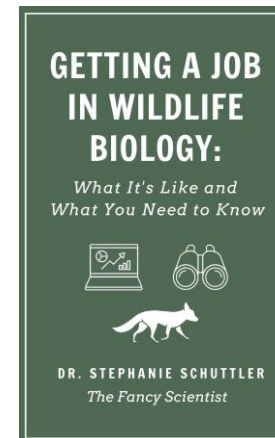
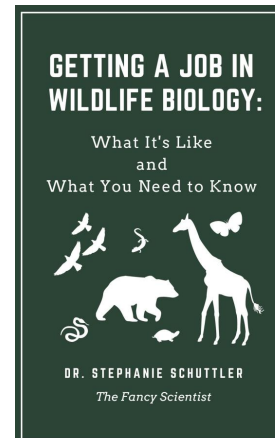
What did people think?



What did people think?



What did people think?



What did people think?



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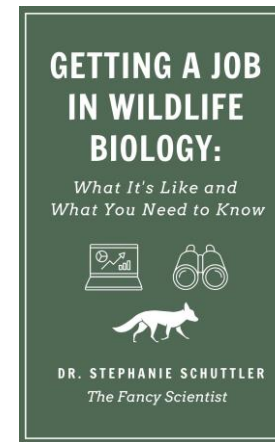
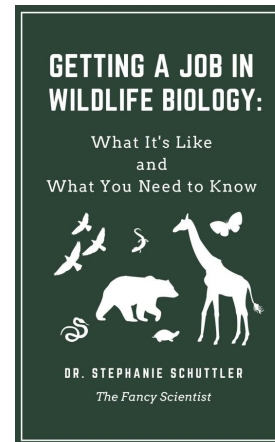
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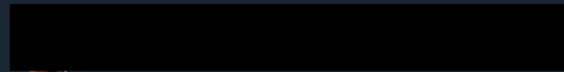
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 9 Sep

Hm... Where's the 70% of the animal reign (marine) ?!





   

 Hopefully somebody has said this already, but a few plants would be nice (and also accurate if you are focussing on wildlife in the IUCN definition of the word). Maybe some fungi too. Unless you do actually mean animal biology, in which case I would change the title.

 1  1  5 

 **Dr. Stephanie Schuttler**  @FancyScientist · 10 Sep

I do talk about how plants, etc are considered wildlife, but I differentiate that when it comes to jobs, most people are referring to terrestrial vertebrates. I also explain that many of these jobs do not involve wildlife directly, but rather habitat. I do not want to use...

 1   

1 more reply

What can we get from coding?


- Data analysis
- Data visualisation
- Reproducibility
- Huge, supportive community

Data analysis

- Many forms of ecological analyses...

- Distance sampling 

- Network analysis  NetDraw

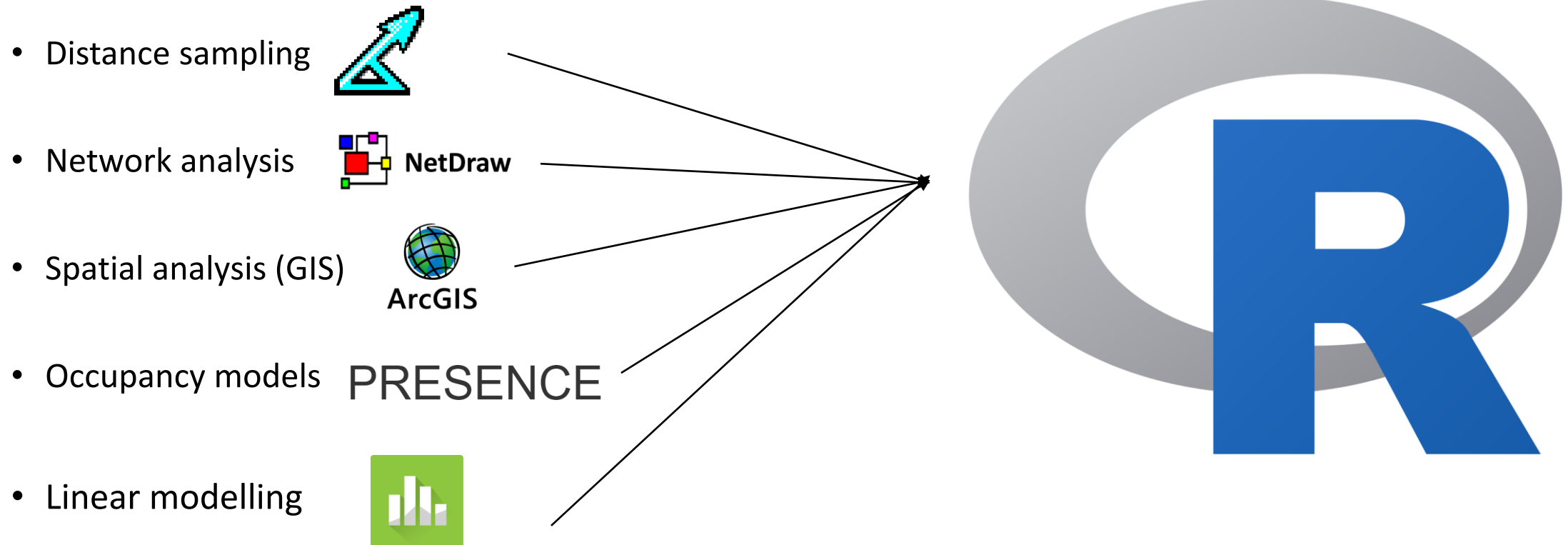
- Spatial analysis (GIS) 
ArcGIS

- Occupancy models PRESENCE

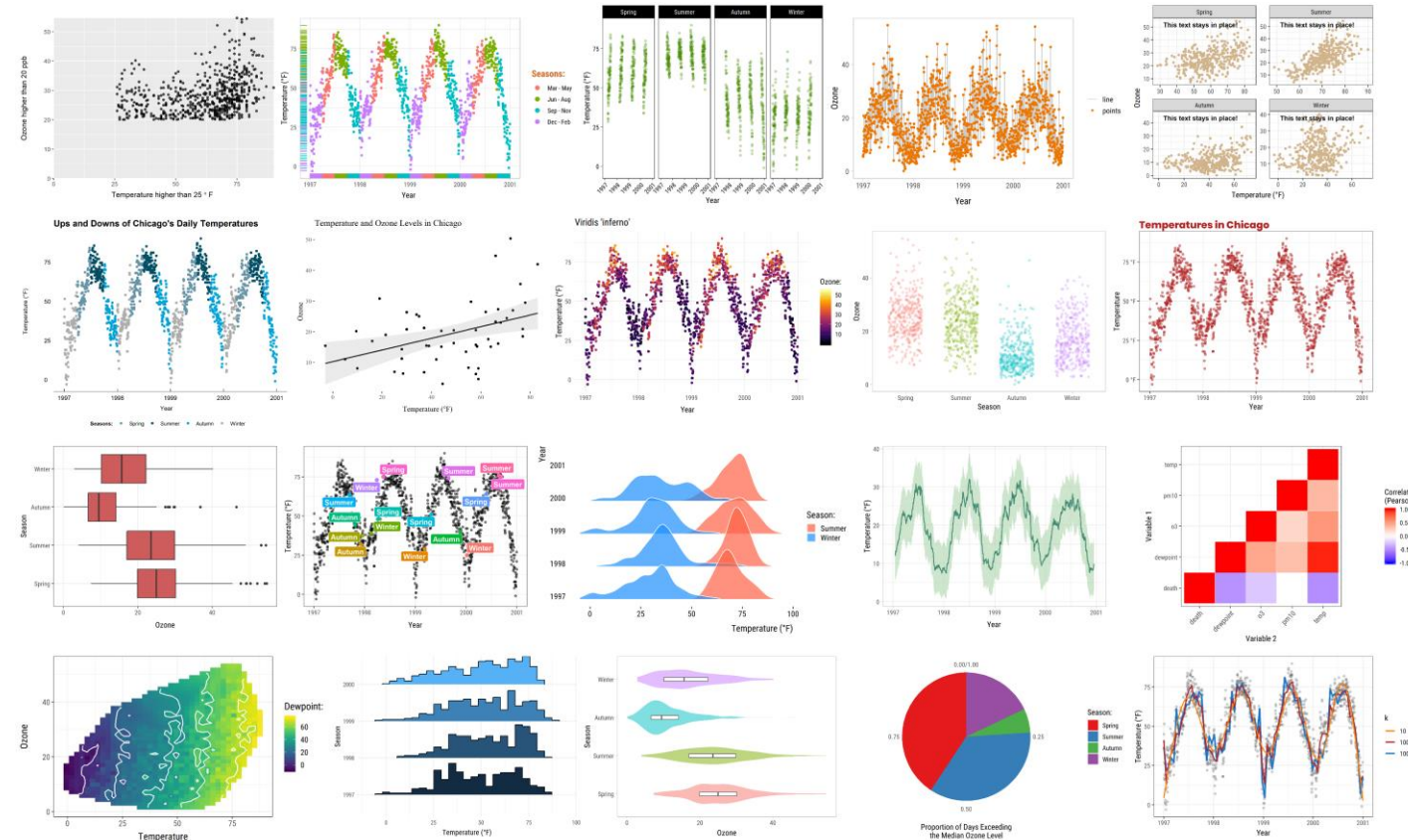
- Linear modelling 

Data analysis

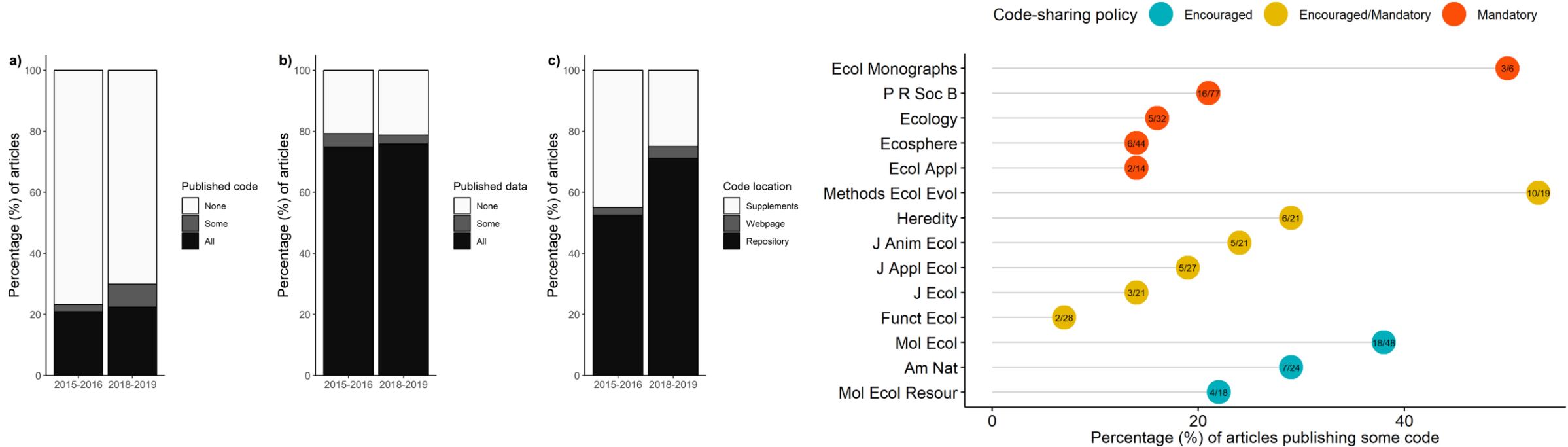
- Many forms of ecological analyses...using just one software/language.



- https://twitter.com/Diego_EllisSo/to/status/1288851798661488641

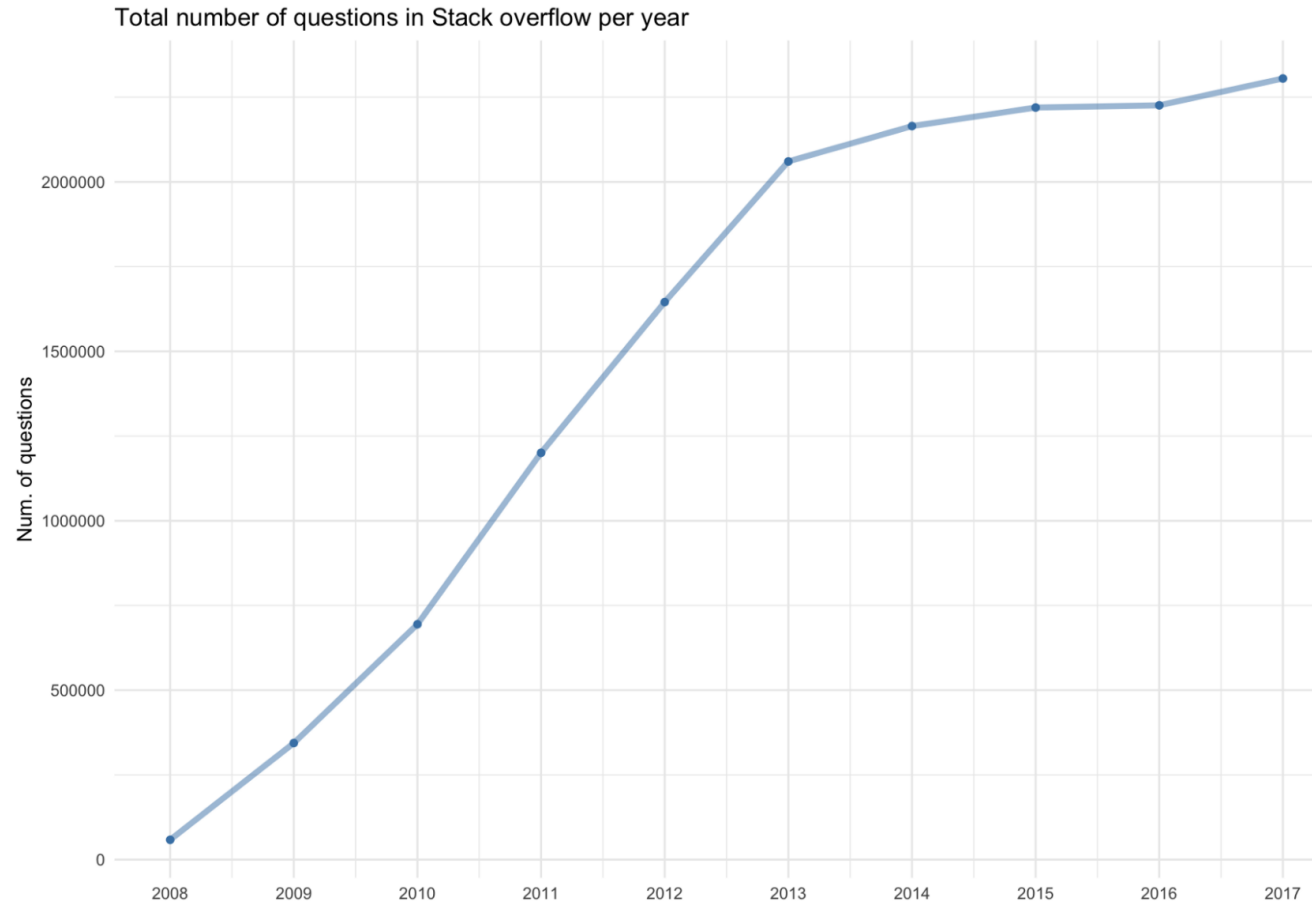


Reproducibility

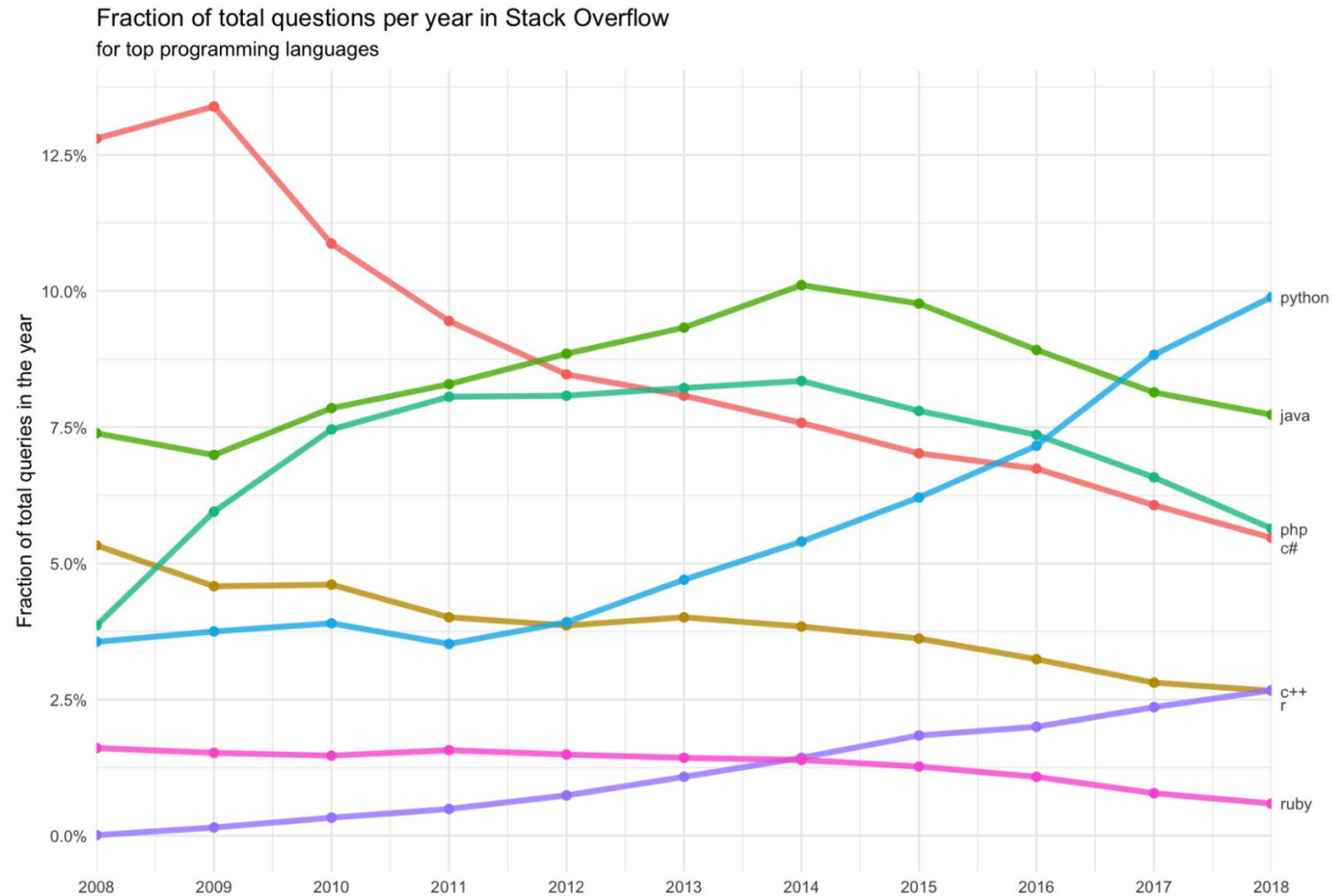


Culina A, van den Berg I, Evans S, Sánchez-Tójar A (2020) Low availability of code in ecology: A call for urgent action. PLoS Biol 18(7): e3000763.
<https://doi.org/10.1371/journal.pbio.3000763>

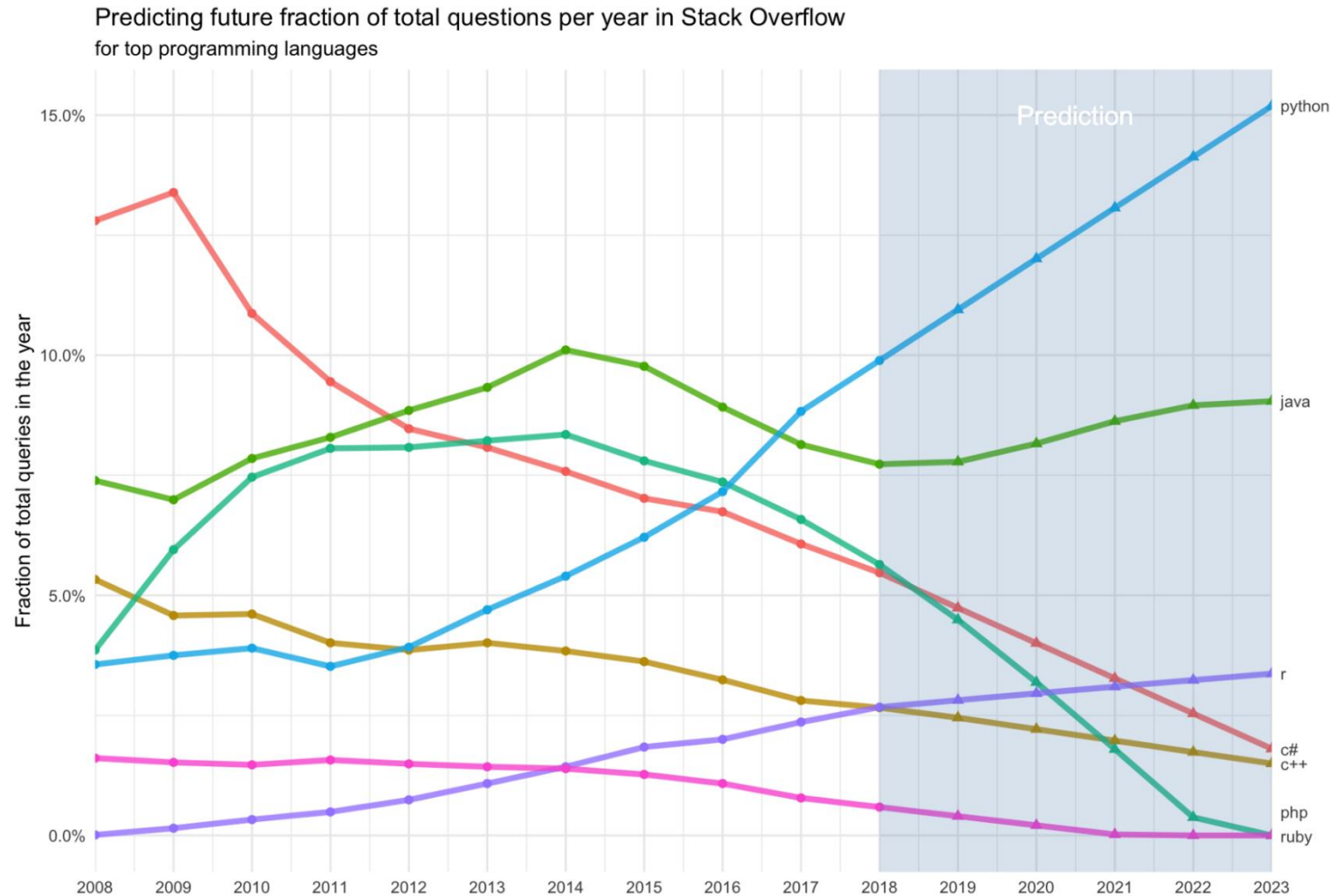
Huge community



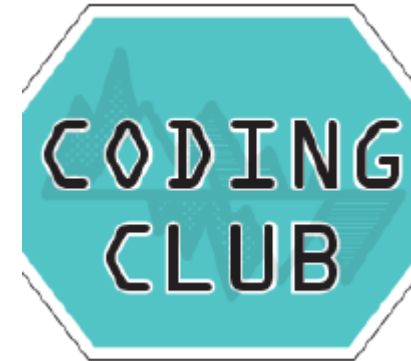
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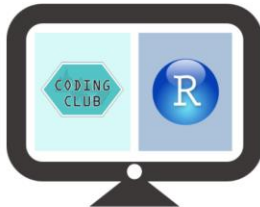
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TUTORIALS



Here you can find our collection of coding, data science and statistics tutorials with examples in R, Python, JavaScript and Python. **As you click through, you'll notice that some tutorials have ribbons on their logos - they are part of our free and self-paced online course [Data Science for Ecologists and Environmental Scientists](#)!** Yellow for the [Stats from Scratch](#) stream, blue for [Wiz of Data Viz](#) and purple for [Mastering Modelling](#). [Learn more about the course and how to sign up here!](#)

We regularly post tutorials, which you can complete in-person at one of [our workshops in Edinburgh](#) or online in your own time. If you are keen to write a tutorial and have it published on the Coding Club website, check out [this page](#) for more information.

R basics

Data manipulation

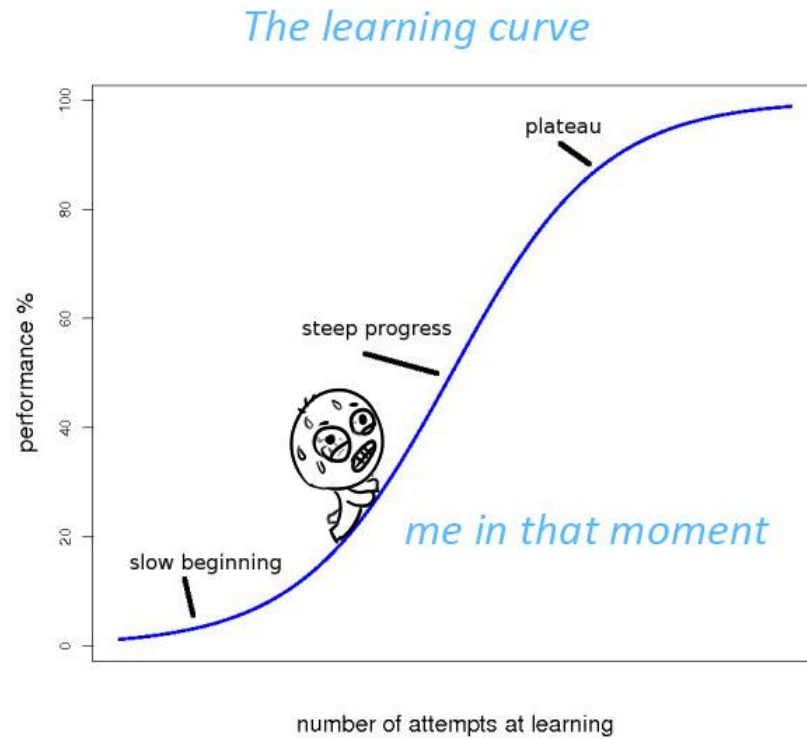
Data visualisation

Modelling

Spatial data

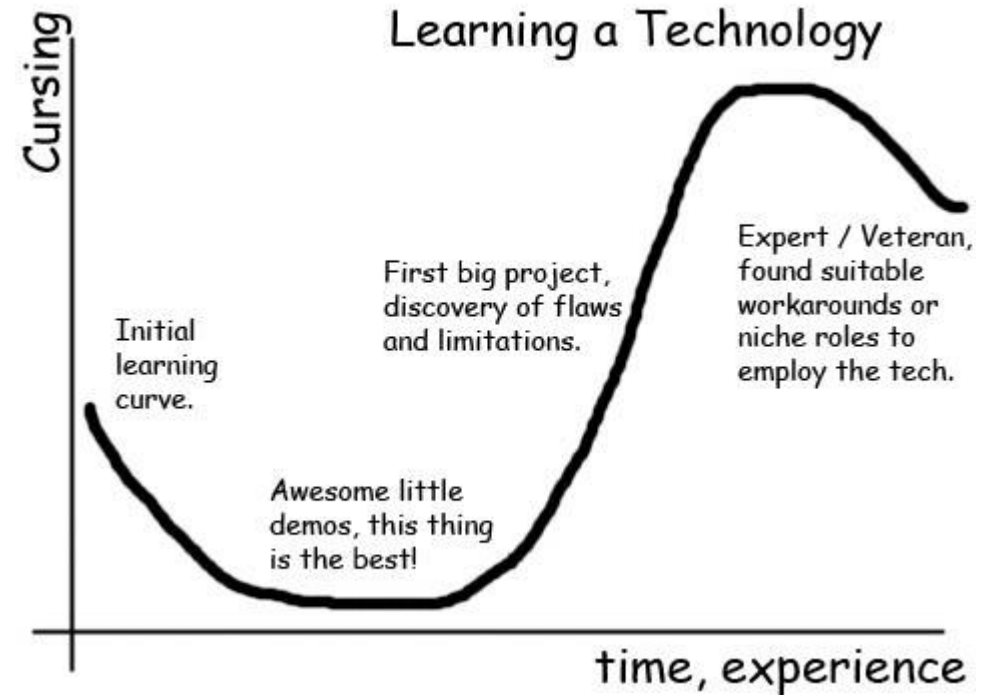
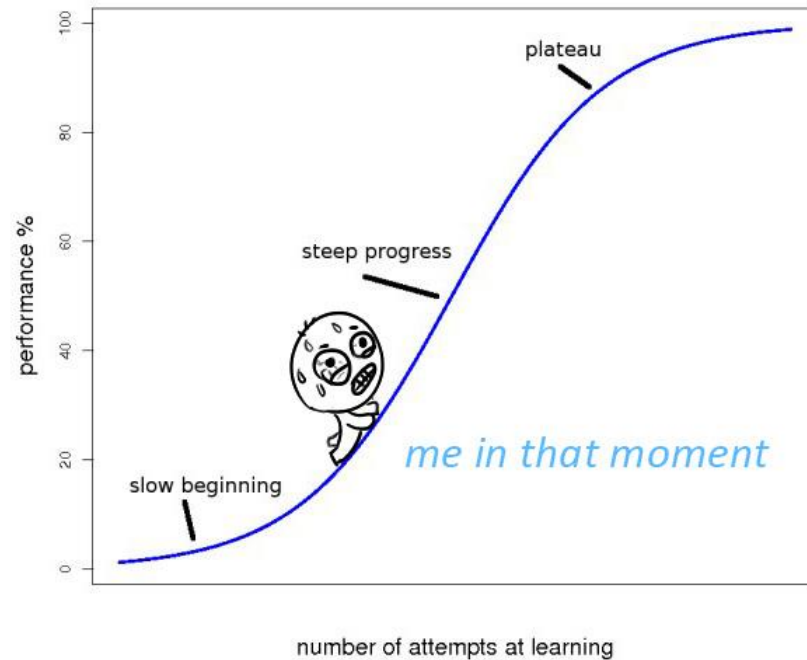
Reproducible research

Coding isn't scary.




Coding isn't scary.

The learning curve




Coding isn't scary.

BROWSE PUBLISH ABOUT SEARCH 

PLOS COMPUTATIONAL BIOLOGY advanced search

OPEN ACCESS EDITORIAL

Ten simple rules for biologists learning to program

Maureen A. Carey, Jason A. Papin 

Published: January 4, 2018 • <https://doi.org/10.1371/journal.pcbi.1005871>

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Ten Simple Rules

ADVERTISEMENT

Introduction


Rule 1: Begin with the end in mind

Rule 2: Baby steps are steps

Rule 3: Immersion is the best learning tool

Rule 4: Phone a friend

Figures



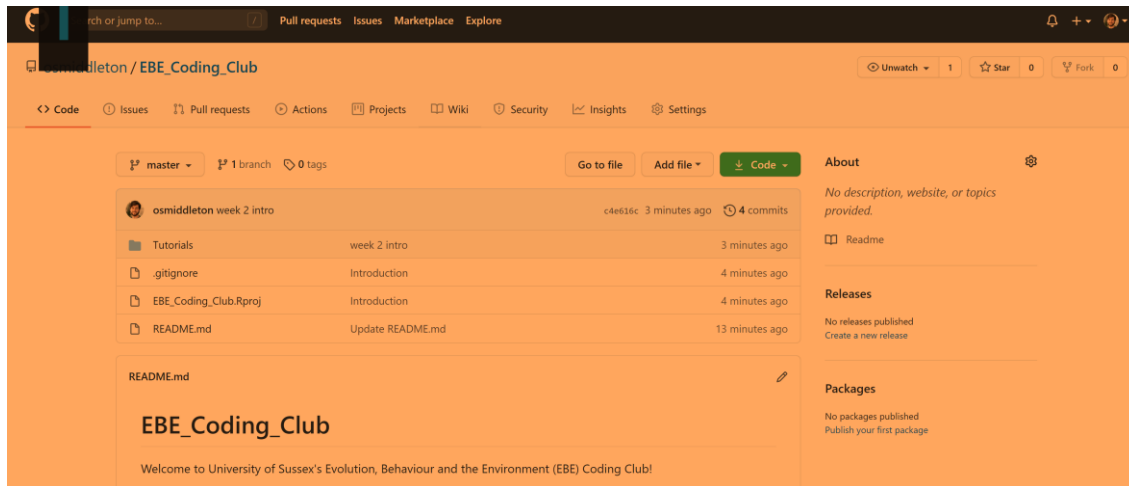
<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005871> (Thanks Mikkel!!)

What we will be doing in Coding Club

- Our own supportive coding community:
 - Sharing
 - Advice
 - Brainstorming
 - De-bugging
- Year-long support for UG/Masters students.
- **Short** tutorial each week on some code of interest.
- All material will be hosted on Owen Middleton's GitHub.

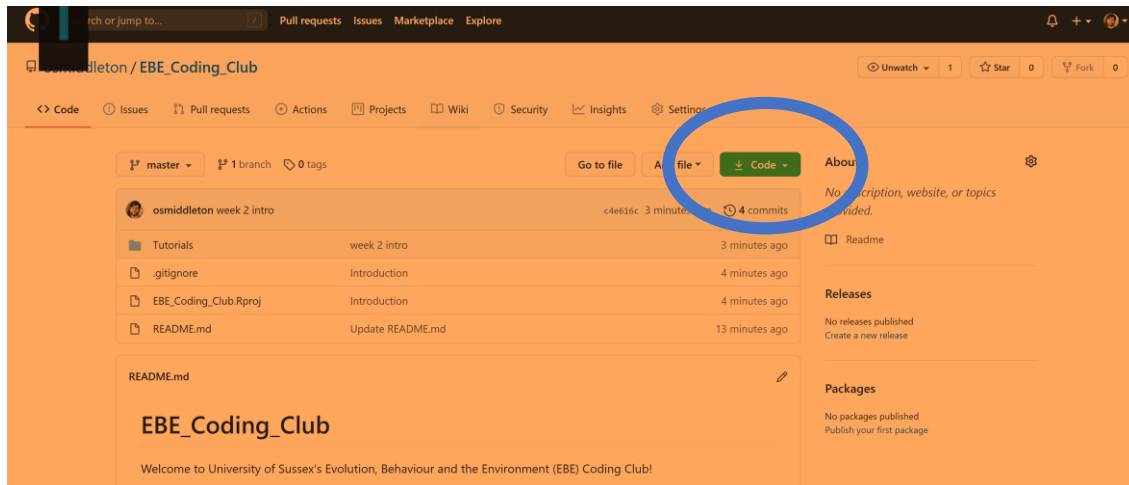


- Online storage for project repositories (i.e. folders).
- Useful for storing files for individual projects.
- Fundamental for complicated collaborative projects (more experienced).



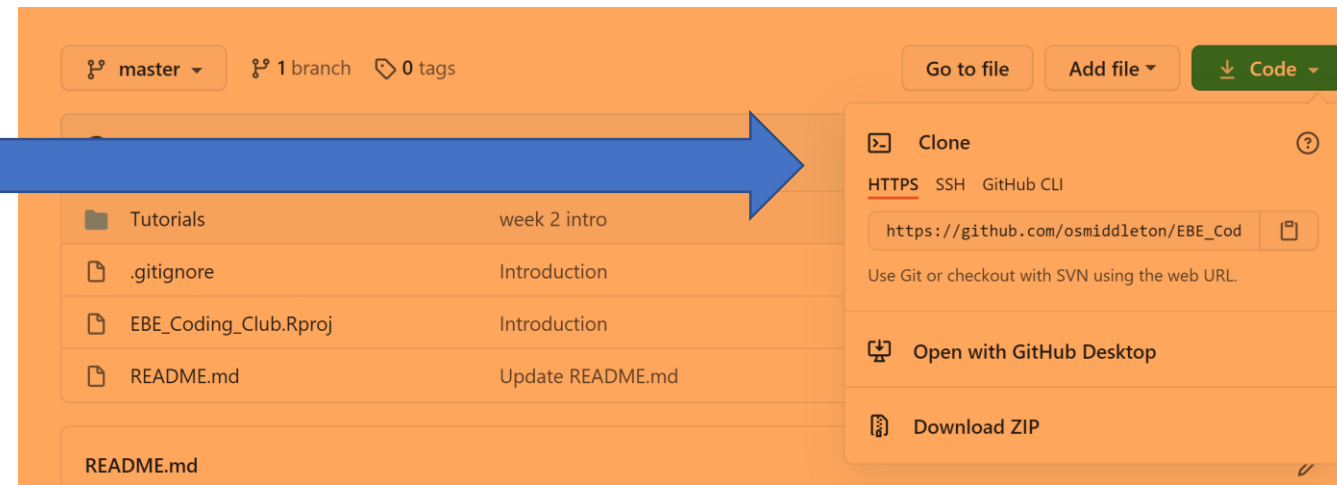
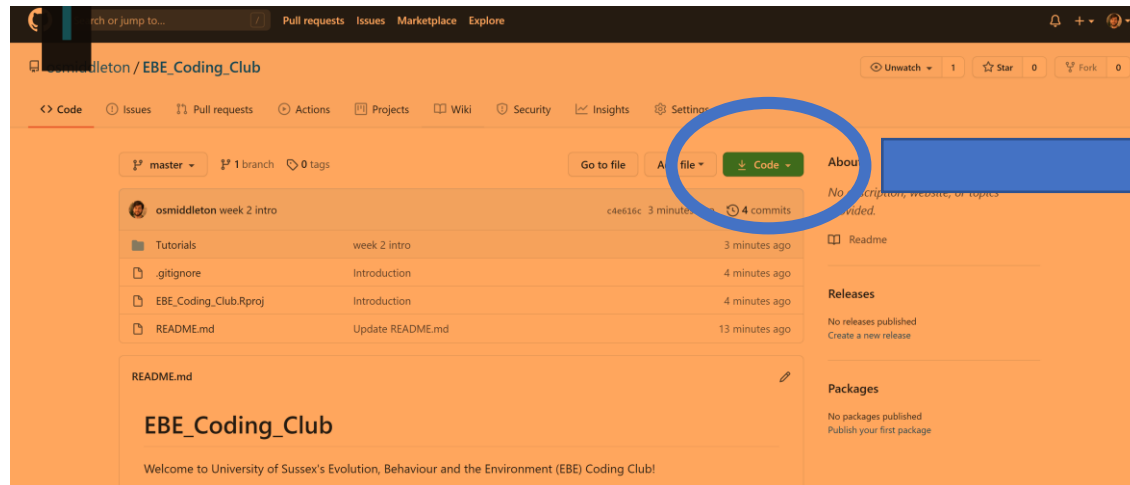


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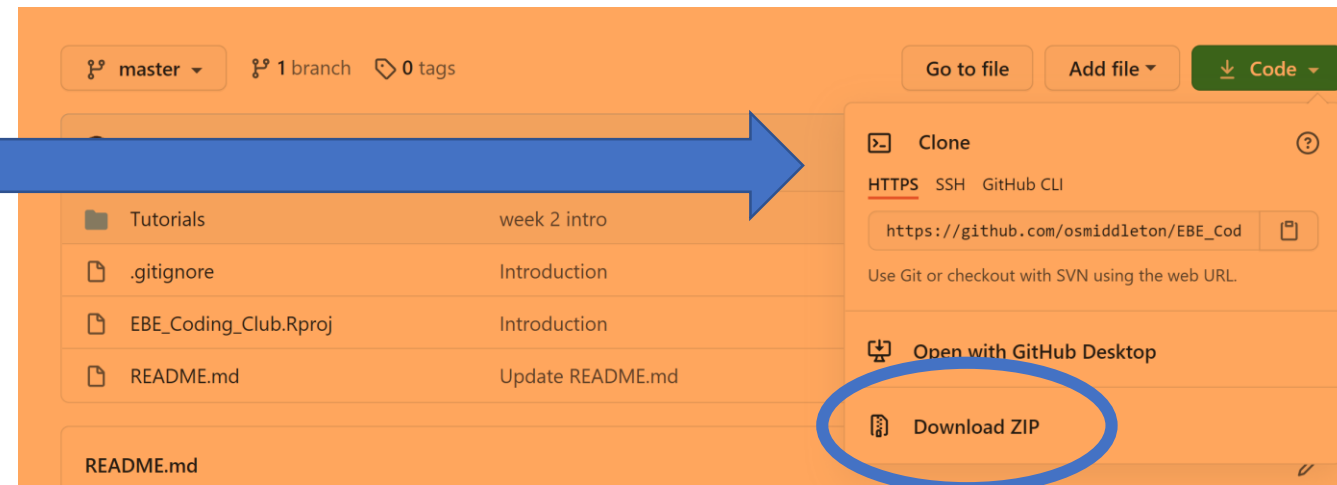
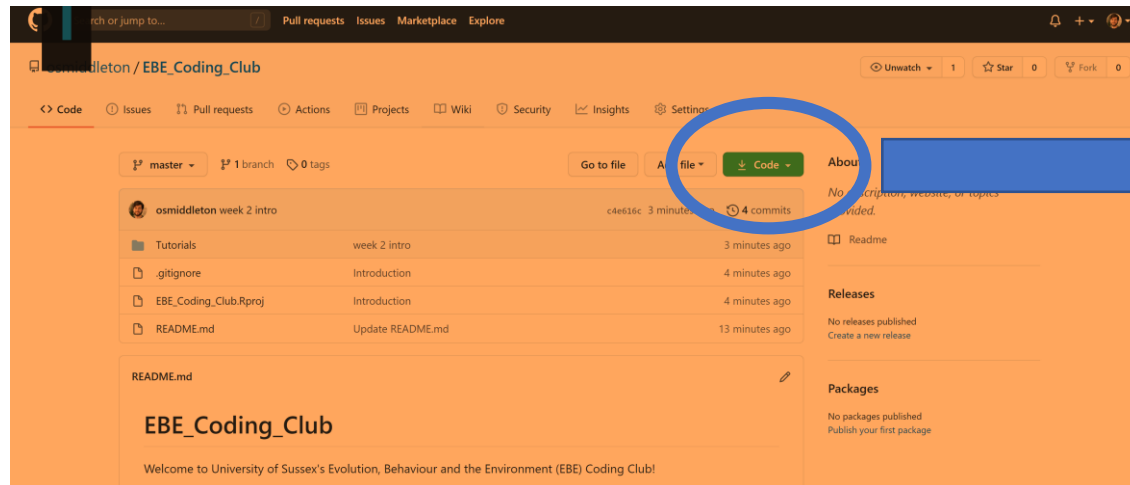


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