

# Digital Tools for Reproducible Research

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**Materials** <https://bolibaugh.github.io/DigitalTools/> <https://osf.io/jrxyw/>

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Research increasingly reliant on computational and data skills...

“Some other time”

Too many options

Inefficient to learn on your own

Shaming?

# Research increasingly reliant on computational and data skills...

“Some other time”

Reproducible workflows (including code)  
save time once set up

“Too many options”

Learn the logic now, specialise later

Inefficient to learn on your own

True -- do it here

Shaming? Everyone started somewhere; very  
few are experts

Week 5 [Reproducible research](#) 15 May 2019

Week 6 [Preregistration](#) 22 May 2019

Week 8 [Open data](#) 5 June 2019

Week 9 [Reproducible analyses, power analysis  
and simulation](#) 12 June 2019

Week 10 [Writing a reproducible manuscript](#) 19  
June 2019

## 02 Preregistration

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# Today

An introduction to different types  
of preregistration

Look through different  
preregistration templates

Browse completed preregistrations

Start to fill out a preregistration  
template with details from a planned  
(or completed) study

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# Preregistration

A time-stamped, read only version of your analysis plan created before the study.

## Preregistration



### **Study plan:**

- Hypothesis
- Data collection procedures
- Manipulated and measured variables

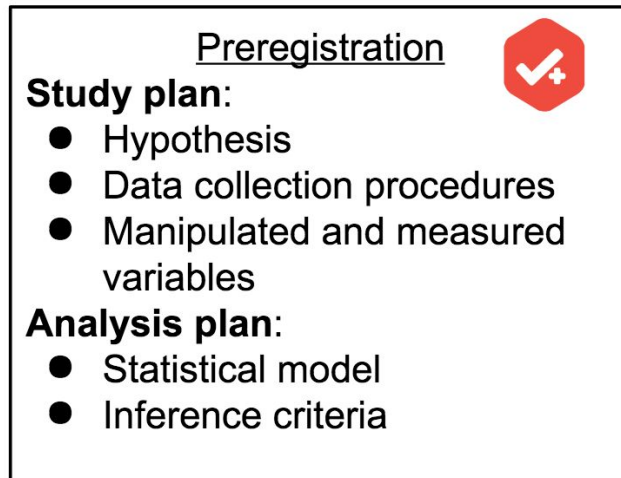
### **Analysis plan:**

- Statistical model
- Inference criteria

# Preregistration

A time-stamped, read only version of your analysis plan created before the study.

When the research plan undergoes peer review before results are known, the preregistration becomes part of a **Registered Report**



# Preregistration

A time-stamped, read only version of your analysis plan created before the study.

## Why preregister?

Helps you to avoid p-hacking (unreported flexibility in data analysis) and HARKing (creating post hoc hypotheses).

Adds rigour by specifying a-priori hypotheses (separating confirmatory from exploratory).

Minimises mistakes by frontloading work.

## Preregistration



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## Preregistration



### **Study plan:**

- Hypothesis
- Data collection procedures
- Manipulated and measured variables

### **Analysis plan:**

- Statistical model
- Inference criteria

You can also preregister qualitative,  
and secondary data analyses.

# As predicted.org

A standardized set of questions asking you only to include what needs to be included,

Simplest form of preregistration, can remain private

- Visit <https://aspredicted.org/>
- Look through the [template](#) in conjunction with the [datacolada blog post](#) setting out best practice
- Look through an [example](#) OSF project

Item in preregistration	<i>Bad answer</i>	<i>What's wrong with it?</i>	<i>Good answer</i>
Research Question or Hypothesis	Building on the work of Picasso (1901-1904), we hypothesized that....	You don't need reasons for asking the research question because they do not inform possible p-hacking. Just state the question or hypothesis of interest.	Question: Does sadness increase preference for the color blue?
Dependent variable	Preference for the color blue	This preference can be measured in many different ways so this statement underspecifies how it will be measured.	Participants will rate their liking for red, blue, orange, and purple on 7-point scales (1 = not at all; 7 = an extreme amount). Preference for blue will be defined as the difference between a participant's rating for blue and their average rating of the three non-blue colors.
Manipulations/Conditions	We will manipulate mood by having participants watch different videos.	This leaves room for cherry-picking from amongst a larger set of conditions. Specify the exact conditions and the exact manipulations.	Before rating their color preferences, participants will be randomly assigned to one of three conditions in which they watch a clip from either a sad video (My Dog Skip), a happy video (Pitch Perfect), or a neutral video (Gone Curling) .
		There are many ways to run	

# OSF

## pre-registrations

More complexity, detail, and different research paradigms

Look through an example preregistration from Eva Poort & Jenni Rodd:

<https://osf.io/ndb7p/>

- Activity one: can you find the preprint? How is the project linked to the publication?
- Activity two: Can you find the preregistration? How does it differ from AsPredicted?

```
#####  
### Working title: Investigating the cognate facilitation effect and inter-  
###   lingual homograph inhibition effect with a semantic relatedness task.  
###  
### Authors: Eva D Poort and Jennifer M Rodd.  
###  
### Project link: [].  
### Pre-registration link: [].  
###  
### Date of submission of pre-registration: 7 December 2017.  
### Date of uploading to OSF: 7 December 2017.  
###  
### R version: 3.4.1.  
### lme4 version: 1.1-13.  
#####
```

# What if...

I need to make changes

- prior to Data Collection?
- during Data Collection?
- after Data Analysis Has Begun?

<https://cos.io/blog/preregistration-plan-not-prison/>

The Preregistration revolution

<https://osf.io/2dxu5/>

my research doesn't fit easily into the standard OSF template?

- Draft a narrative preregistration using the open-ended template [Word](#), [GoogleDoc](#)
- Use & adapt unofficial templates for [qualitative](#), and [secondary](#) data analyses.

# How to create a new pre-reg.

Click the **Registrations** radio button in your project

Make sure you are ready to register your project

Choose a template

*\*begin the draft registration*

Practice drafting your registration in a downloaded **template** before creating it on OSF (also the only choice for qual, & SDA).

## Register



Registration creates a frozen version of the project. Your original project remains editable and will have the registration linked.

Things to know about registration:

- Registrations cannot be edited or deleted.
- Withdrawing a registration removes its contents, but leaves behind basic metadata: title, contributors, date registered, date withdrawn, and justification (if provided).
- Registrations can be public or embargoed for up to four years. Embargoed registrations will be made public automatically when the embargo expires.

Continue your registration by selecting a registration form:

- ☒ **OSF Preregistration** ⓘ
- ☐ Open-Ended Registration ⓘ
- ☐ Registered Report Protocol Preregistration ⓘ
- ☐ Preregistration Template from AsPredicted.org ⓘ
- ☐ OSF-Standard Pre-Data Collection Registration ⓘ
- ☐ Replication Recipe (Brandt et al., 2013): Post-Completion ⓘ
- ☐ Replication Recipe (Brandt et al., 2013): Pre-Registration ⓘ
- ☐ Pre-Registration in Social Psychology (van 't Veer & Giner-Sorolla, 2016): Pre-Registration ⓘ

Cancel

Create draft

Step by step workflow [here](#).

# Your turn

Select an appropriate preregistration [template](#) for your research

1. Look through template, and browse OSF for completed registrations in your area.
2. Complete at least the research questions/hypotheses, and analysis [plan](#)
3. Either copy and paste your work into a new OSF registration for the demo project, or upload your partially completed document to a new component entitled Pre-registrations in your project .

You can look through previous EROS presentations on qualitative research preregistrations [here](#).

# Resources

## OSF guides

### OSF blog

<https://cos.io/blog/preregistration-plan-not-prison/>

### Analysis plan checklists:

<https://osf.io/ncqg7/>

## OSF Guides

Having trouble or don't know where to start? These articles will walk you through how to navigate and use the OSF.

[Go back to the OSF](#)

Enter a keyword or topic to search

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Other Resources

FAQS

Security and Privacy

Accessing Your Account

Managing Your User Settings

Creating and Managing Projects

Navigating the Dashboard and My Projects

Sharing Projects

Collaborating

Links and Forks

Project Files

Quick Files

Add-ons

Registrations

Registries

Preprints

OSF Institutions

OSF Meetings

Best Practices

OSF Guides / Recent Updates

Recent Updates

Updated on: May 14, 2019

Withdraw a Registration

Manual Registrations

Updated on: May 14, 2019

Create a View-only Link for a Registration

You can share the contents of private projects with non-contributors by creating View-Only Links. These links can also be anonymized to remove identifying information, useful in blinded peer review.

Manual Links and Forks

Permissions

Privacy

sharing

view-only

Updated on: May 14, 2019

Affiliate a Registration with an Institution

Manual OSF Institutions

affiliate

Institutions

Registrations

Updated on: May 14, 2019

# Follow-up

Preparation for Week 8

Complete pre-registration without a data analysis script.

Familiarise yourself sufficiently with the key variables in your study so that you can simulate data for your in the next session.

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