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# DIGITAL LAB NOTEBOOK WITH GIT/GITHUB AND MARKDOWN

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INSTRUCTOR'S NOTES

# Table of Contents

Table of Contents . . . . .	i
<b>1 Introduction</b>	
(~40min)	<b>1</b>
1.1 What is git? . . . . .	1
1.2 Creating GitHub . . . . .	2
1.3 Markdown files . . . . .	2
<b>2 Making Digital Lab Notebook</b>	
(~50min)	<b>4</b>
2.1 Change, add, and commit . . . . .	4
2.2 Creating new entries . . . . .	4
2.3 Linking entries . . . . .	5
<b>3 Working Collaboratively and Locally</b>	
(~50min)	<b>6</b>
3.1 Sharing your repository . . . . .	6
3.2 Why use git on local machine? . . . . .	6
3.3 Setting up git on your local machine . . . . .	6

# Introduction

(~40min)

## What is git?

**Duration: 15min**

- Start with examples of keeping track of changes of a document (e.g. thesis/paper)
  - MS Word keeps record of changes of the **current** document – when you close and re-open the document, you lose all of the changes you made previously
  - To avoid the situation as above, people usually make a copy before they start editing, and then (eventually) compare the new version with the old one (which is a hassle)
- Example FAQ: “Can you reproduce your results?” (were your methods/protocols well documented?)
- Example FAQ: “What protocol(s) did you use for that experiment?” (when you have multiple trial/error attempts)
- Make absolutely clear the objective(s) of using a version control system

- To keep track of and maintain the most current version of your document
- Keep a long-living history of your document/protocols
- Share documents with others for collaboration
- ‘Back-up’ of your codes

(Make a diagram somewhere)

## Creating GitHub

**Duration: 10min**

- Create a GitHub account
- Explain what GitHub is
  - A “remote” server for your git repository
  - Essentially an online storage space for the documents that you want to version control
- Create a DLN repository to work with during the course
- Explain what a repository is

## Markdown files

**Duration: 15min**

- Edit README.md
- Explain and show what a Markdown document is
- Introduce some Markdown syntax

- Headers
- Text decorations (bold, italics, underline, etc.)
- Web Links
- Adding images
- Footnotes
- Tables

Play around with Markdown syntax using the README file (saving changes and committing comes in the next chapter/section).

# Making Digital Lab Notebook (~50min)

## Change, add, and commit

**Duration: 20min**

- Save changes and commit the README.md
- Explain what committing means
- Show what the logs/commit history look like
- Explain what the git commit ID/hash are
- Add/remove more stuff to the README file and commit changes
- Note the diff of the documents when making changes
- Demonstrate how to revert documents to previous version

## Creating new entries

**Duration: 15min**

## Linking entries

**Duration: 15min**

# Working Collaboratively and Locally (~50min)

Sharing your repository

**Duration: 15min**

Why use git on local machine?

**Duration: 15min**

Setting up git on your local machine

**Duration: 20min**