


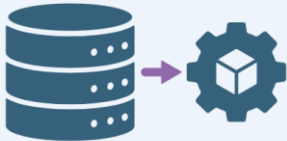
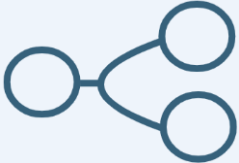






Introduction to Bookdown – view from my experience



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Enhancing Research Support

 Technical Skills	 Modules	 Support
 Molecular Genetics <ul style="list-style-type: none"> ▪ DNA ▪ RNA ▪ Nucleotides 	<ul style="list-style-type: none"> • DNA/RNA extraction • PCR/qPCR • Quantification • Next-Generation Sequencing 	<ul style="list-style-type: none"> • Bioinformatics • Experimental Design • Troubleshooting
 Analytical Chemistry <ul style="list-style-type: none"> ▪ Peptides ▪ Bioactives 	<ul style="list-style-type: none"> • Chromatography: HPLC Prep., GC-MS, LC-NMR • Mass Spectrometry (LC-MS, GC-MS) • Spectroscopy: UV-Vis, FTIR, Atomic Absorption (AAS) 	<ul style="list-style-type: none"> • Instrument-specific software • Method development • Solvent purity checks
 Cell Culture <ul style="list-style-type: none"> ▪ Mammalian ▪ Bacterial 	<ul style="list-style-type: none"> • Aseptic Technique & Contamination Control • Transfection, • Cell Viability Assays (MTT) 	<ul style="list-style-type: none"> • CO2 incubators, Safety Cabinets • Mycoplasma testing, cell line authentication • Cell counting/plate readers
 Microscopy <ul style="list-style-type: none"> ▪ Biological (cells) ▪ NonBiological (Materials) 	<ul style="list-style-type: none"> • Confocal • SEM/TEM • Image Analysis (ImageJ) • Sample Staining 	<ul style="list-style-type: none"> • Operating software (e.g., Zeiss) • Quantification • Alignment, calibration
 GIS <ul style="list-style-type: none"> ▪ ArcGIS Pro ▪ QGIS 	<ul style="list-style-type: none"> • Remote Sensing Analysis (Satellite Imagery) • Spatial Data Modeling • Remote Sensing 	<ul style="list-style-type: none"> • Public repositories • Python, R • Environmental modelling
 Data Handling & Assessment <ul style="list-style-type: none"> ▪ R/Python ▪ Statistical analysis 	<ul style="list-style-type: none"> • Data wrangling & Processing • Statistical analysis • Data visualisation • Database management 	<ul style="list-style-type: none"> • Advanced analysis - Python, R • Reproducibility • Manuscript writing

Bookdown

- Purposes/uses
 - Long-winded version of using a word document
 - Produces version ready documents – PDF, HTML, GIT
 - Reproducible – broad usage (inset code, tables, figures, images, video etc.)
- Training
 - Bioinformatics hands-on workshops
 - At users pace
 - Think! – questions, multiple choice, bespoke overview of complex topics
- Very effective for neurodiverse audience and relaying complex ideas

Environment

- Rstudio
- Rmarkdown
- File control

_bookdown.yml

```
1 book_filename: "ljmutRicks"
2 output_dir: "docs"
3 language:
4   ui:
5     chapter_name: "Chapter "
6 delete_merged_file: no
7 rmd_files:
8   - index.Rmd
9   - "01-GettingStarted.Rmd"
10  - "02-setup.Rmd"
11  - "03-formatting.Rmd"
12  - "04-media.Rmd"
```

_output.yml

```
1 bookdown::gitbook:
2   css: style.css
3   config:
4     toc:
5       collapse: subsection
6       before: |
7         <li class="toc-logo" style="padding: 10px; text-align: center;">
8           <a href="https://ljmu.ac.uk" target="_blank">
9             
10          </a>
11        </li>
12        <span style="font-size: 18px; font-weight: bold; display: block; text-align: center;">
13          <li><a href="https://github.com/rstudio/bookdown">Bookdown</a>
14          edit: https://github.com/USERNAME/REPO/edit/master
15          download: [ ["pdf", "epub"] ]
16        split_by: section
17        split_bib: false
18      bookdown::pdf_book:
19        includes:
20          in_header: preamble.tex
21          latex_engine: xelatex
22          citation_package: natbib
23          keep_tex: yes
24      bookdown::epub_book: default
```

index.Rmd

```
1 ---
2 title: "BookdownRicks"
3 author: "Peter Shum"
4 date: "`r Sys.Date()`"
5 site: bookdown::bookdown_site
6 output: bookdown::gitbook
7 documentclass: book
8 bibliography: [book.bib, packages.bib]
9 biblio-style: apalike
10 link-citations: yes
11 favicon: figures/ljmutricks.jpg
12 description: LJMU intro to bookdown
13 cover-image: "figures/ljmutricks.png"
14 resource_files:
15   - figures/*
16 ---
```

Let's get into it