



```
dds <- DESeqDataSetFromMatrix(countData = cts,  
                              colData = coldata,  
                              design= ~ batch + condition)  
  
dds <- DESeq(dds)  
resultsNames(dds) # lists the coefficients  
res <- results(dds, name="condition_trt_vs_untrt")  
# or to shrink log fold changes association with condition:  
res <- lfcShrink(dds, coef="condition_trt_vs_untrt", type="apeglm")
```

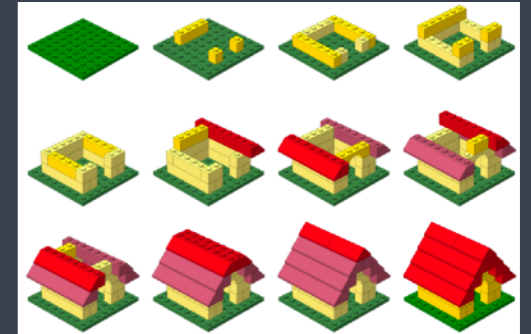
Bulk RNA-seq Analysis Part II

Differential Gene Expression

Harvard Chan Bioinformatics Core

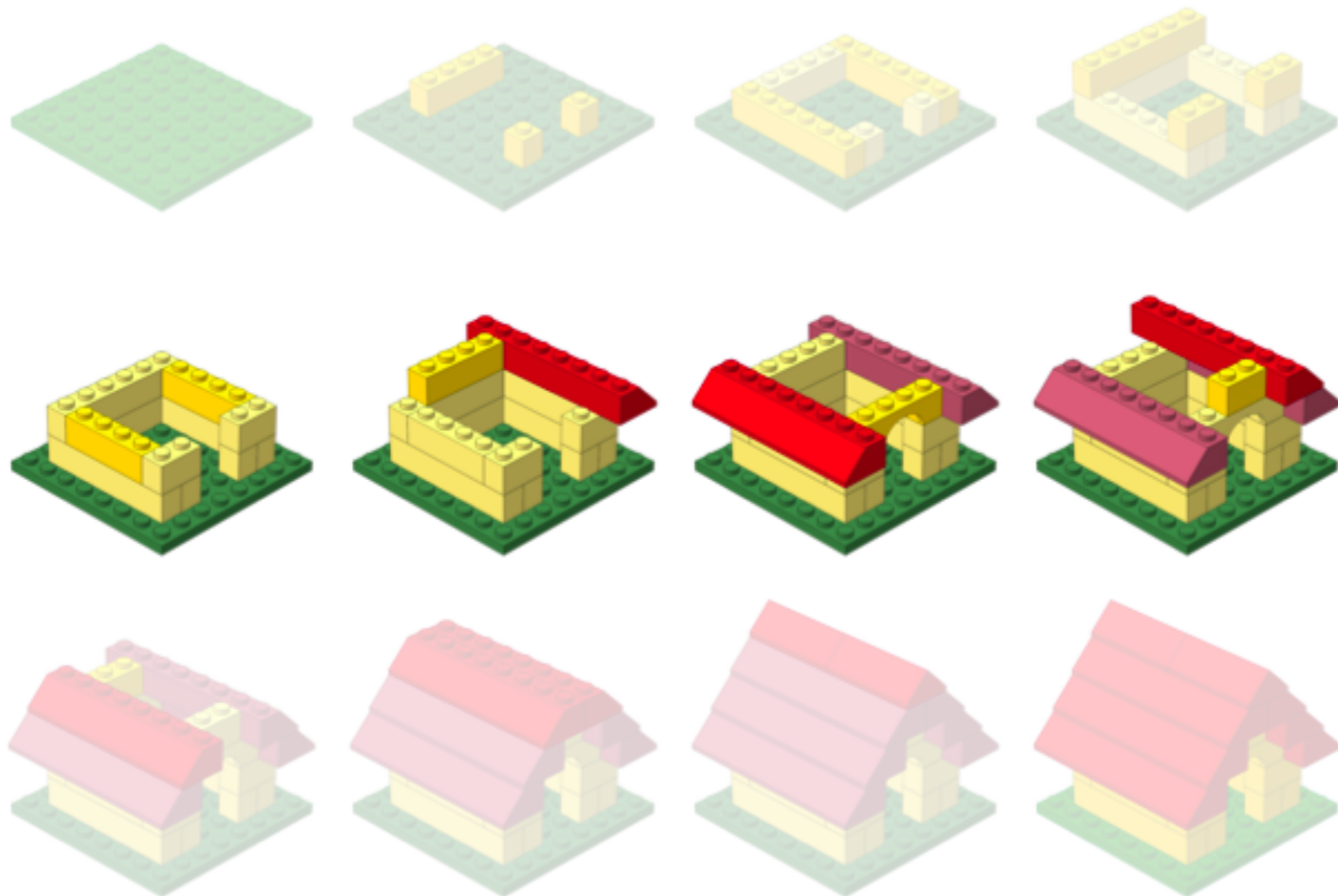
<https://tinyurl.com/hbc-dge-online>

Workshop Scope



Differential Gene Expression analysis

- ✓ Understand the considerations for performing statistical analysis on RNA-seq data
- ✓ Start with gene counts (after alignment and counting)
- ✓ Perform QC on count data
- ✓ Use DESeq2 to perform differential expression analysis on the count data and obtain a list of significantly different genes
- ✓ Visualize results of the analysis
- ✓ Perform functional analysis on the lists of differentially expressed genes



<http://anoved.net/tag/lego/page/3/>

Bioinformatics data analysis

Exit survey

<https://tinyurl.com/DGE-exit-survey>

Interested in additional training?

<https://hbctraining.github.io/Training-modules/>

Short workshops: Current Topics in Bioinformatics

These workshops are free and open to all researchers at Harvard University and affiliated institutions.

- **Workshops** on bioinformatics methods & related skills.
- Once a month for 3 hours
- Hands-on workshops - be prepared with your MAC or Windows computer
- **Free and open to everyone at Harvard University and its affiliates**
- Will meet the **first Wednesday of the month** (with one exception) **online via Zoom**
- **Sign up at the links below to receive the workshop Zoom link**

Big data? Big computer!

The skill set you need to succeed

<https://hbctraining.github.io/Training-modules/>

Spring 2024 schedule - Big data? Big computer! The skill set you need to succeed:

Topic	Pre-requisites	Date/Time	Time	Registration
Shell Tips and Tricks on O2	Basic Shell	5/15/24	1 – 4pm	Register!

Interested in additional training?

All workshop materials are online: <https://hbctraining.github.io/main>

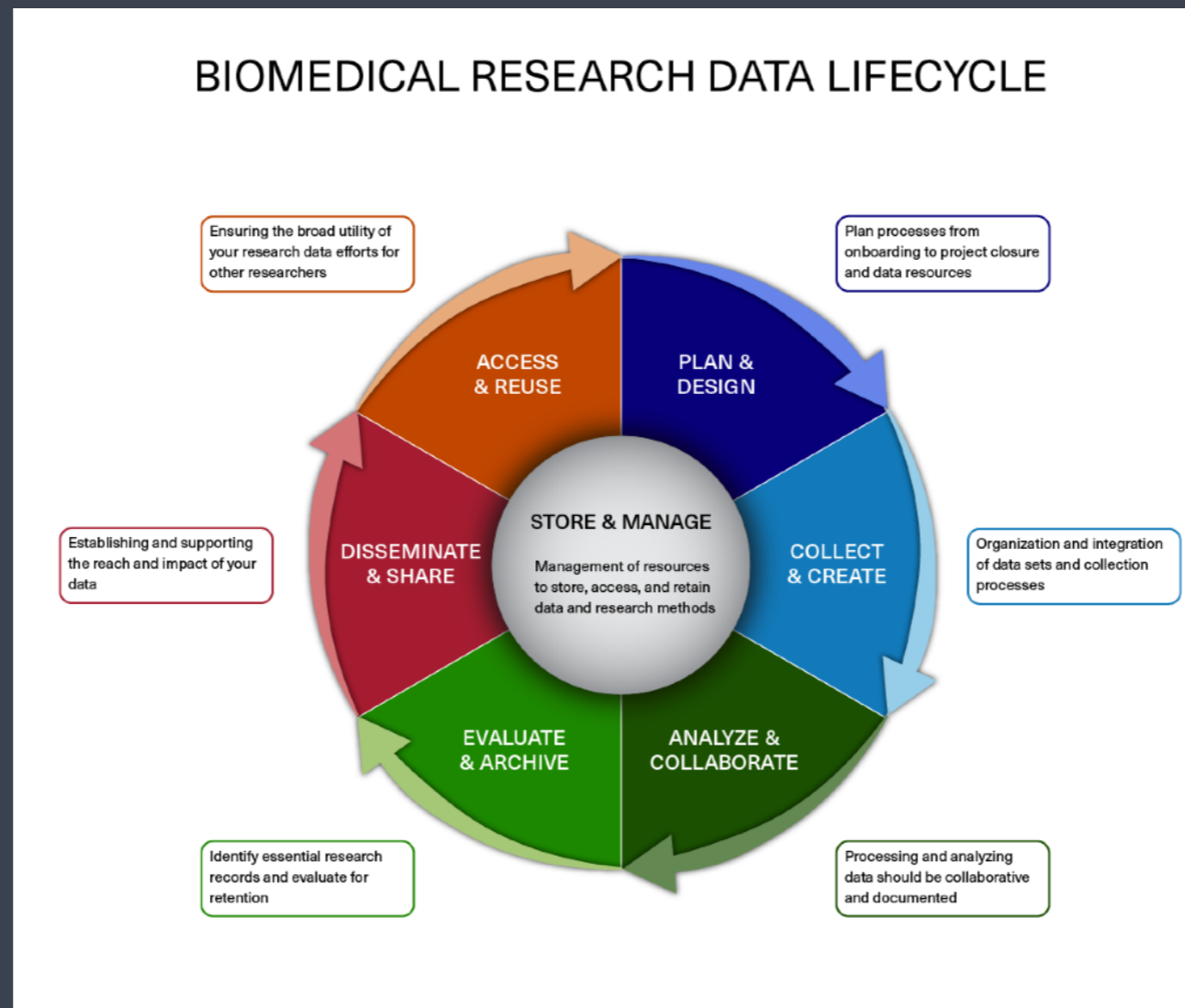
Sign up for our mailing list:

<https://tinyurl.com/hbc-training-mailing-list>

Data Management

- HMS Data management -
 - Webpage: <https://datamanagement.hms.harvard.edu/>
 - [Click here to sign up for data management related emails](#)
 - Check out the [training schedule](#) for short workshops
- Harvard-wide Research Data Management -
<https://researchdatamanagement.harvard.edu/>

Data Management Short Workshops




<https://datamanagement.hms.harvard.edu/about/news-events/rdmwg-calendar>







Data Management Short Workshops

Spring 2024 Data Lifecycle Training






Plan & Design

- April 17**  Writing a Data Management and Sharing Plan for Grant Applications
- April 24**  Principles of Data Stewardship
- May 1**  Don't Leave Yet! Research Data Offboarding Done Right
- May 8**  Don't Leave Yet! Research Data Offboarding Done Right





Collect & Analyze



- February 21**  Basic Shell
- March 6**  Using Metadata to Find, Interpret & Share Your Data
- March 13**  Intro to MATLAB
- March 13**  Introduction to GIS
- April 17**  Intermediate Shell
- May 15**  Active Project Version Control with Git

Store & Evaluate

- February 7**  The When, Where, and How of Data Storage
- February 27**  Introduction to the General Records Schedule
- March 20**  Managing Data Transfer Between Collaborators
- March 26**  Managing Your Paper Records
- May 7**  Managing Your Electronic Records

Share & Publish

- January 16**  Data Sharing and Reuse on the Vivli Platform
- February 13**  Introduction to Harvard Dataverse
- February 15**  Research Management Using the Open Science Framework
- April 10**  Achieving FAIR Data: Selecting a Repository for Your Data

 In-person
 Virtual



Learn More & Register: bit.ly/rdmwg-calendar



<https://datamanagement.hms.harvard.edu/about/news-events/rdmwg-calendar>

Bioinformatics Community Networking Breakfast!



- *Free and open to the Harvard community*
- *Food is first-come-first-served*
- *No computers!*
- *Quarterly* (Next meeting: June 6th)

More info: <http://bioinformatics.sph.harvard.edu/breakfast/>

Get (stay) in touch with us!

Training email: hbctraining@hsph.harvard.edu

Consulting email: bioinformatics@hsph.harvard.edu

Twitter: [@bioinfocore](https://twitter.com/bioinfocore)