Statistics for Genomics: Differential Expression

May 08, 2025

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# About this Book

This book is intended to introduce concepts in differential expression.

## Skills Level

*Genetics*

*Programming skills*

## GDSCN Collection

This exercise is part of a collection of teaching resources developed through the *Genomic Data Science Community Network* (GDSCN). GDSCN works towards a vision where researchers, educators, and students from diverse backgrounds are able to fully participate in genomic data science research. Learn more about GDSCN by visiting <https://www.gdscn.org/home> or reading the [article in Genome Research](https://doi.org/10.1101/gr.276496.121).

Please check out our full collection of AnVIL and related resources: <https://hutchdatascience.org/AnVIL_Collection/>

# 1 Student Guide

## 1.1 Activity One

Many of the AnVIL books that are designed for teaching a class or workshop contain information aimed at the instructor.

You might want to create a “student guide” that contains a different subset of Rmd files from your book, or renders to a different output format (e.g. word document). You can specify the output and Rmd files that will be used for the student guide using the \_output.yml and \_bookdown.yml files in the student-guide directory.

By default, repositories based on AnVIL\_Template create a docx file containing this chapter as an example. Once you have adjusted student-guide/bookdown.yml to include the chapters you want in your student guide, you can link to it by replacing {repo-name} in the following URL:

https://github.com/jhudsl/{repo-name}/raw/main/student-guide/docs/Student\_Guide.docx

When someone clicks this link, they will download the docx file. For example, here is the link for the student guide from AnVIL\_Template:

<https://github.com/jhudsl/AnVIL_Template/raw/main/student-guide/docs/Student_Guide.docx>

## 1.2 Activity Two

Steps of the guide could go here.

# About the Authors

These credits are based on our [course contributors table guidelines](https://github.com/jhudsl/OTTR_Template/wiki/How-to-give-credits).

| Credits | Names |
| --- | --- |
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| **Funding** |  |
| Funder | [National Human Genome Research Institute (NHGRI)](https://www.genome.gov/) |
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## ─ Session info ───────────────────────────────────────────────────────────────  
## setting value  
## version R version 4.1.3 (2022-03-10)  
## os Ubuntu 20.04.5 LTS  
## system x86\_64, linux-gnu  
## ui X11  
## language (EN)  
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## ctype en\_US.UTF-8  
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## bookdown 0.24 2023-03-22 [1] Github (rstudio/bookdown@88bc4ea)  
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## callr 3.7.0 2021-04-20 [1] RSPM (R 4.1.0)  
## cli 3.2.0 2022-02-14 [1] RSPM (R 4.1.0)  
## crayon 1.5.1 2022-03-26 [1] RSPM (R 4.1.0)  
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## glue 1.6.2 2022-02-24 [1] RSPM (R 4.1.0)  
## htmltools 0.5.2 2021-08-25 [1] RSPM (R 4.1.0)  
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## pkgload 1.2.4 2021-11-30 [1] RSPM (R 4.1.0)  
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## rlang 1.0.2 2023-03-22 [1] Github (r-lib/rlang@34b04a8)  
## rmarkdown 2.10 2023-03-22 [1] Github (rstudio/rmarkdown@02d3c25)  
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## stringi 1.7.6 2021-11-29 [1] RSPM (R 4.1.0)  
## stringr 1.4.0 2019-02-10 [1] RSPM (R 4.1.0)  
## testthat 3.0.1 2023-03-22 [1] Github (R-lib/testthat@e99155a)  
## usethis 2.1.6.9000 2023-03-22 [1] Github (r-lib/usethis@b4b8623)  
## withr 2.5.0 2022-03-03 [1] RSPM (R 4.1.0)  
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## yaml 2.3.5 2022-02-21 [1] RSPM (R 4.1.0)  
##   
## [1] /usr/local/lib/R/site-library  
## [2] /usr/local/lib/R/library  
##   
## ──────────────────────────────────────────────────────────────────────────────

# 2 References