# Using R Studio

GEN 462

SEPTEMBER 3, 2019

# Bioinformatics

Defined as "the science of collecting and analyzing complex biological data such as genetic codes" (Oxford dictionary)

Bioinformatics is becoming increasingly central to research in the life sciences. However, despite its importance, bioinformatics skills and knowledge are not well integrated in undergraduate biology education. This curricular gap prevents biology students from harnessing the full potential of their education, limiting their career opportunities and slowing genomic research innovation. To advance the

-Sayres et al. 2017

**Methods in Ecology and Evolution**

BRITISH ECOLOGICAL SOCIETY

*Methods in Ecology and Evolution* 2016      doi: 10.1111/2041-210X.12700

## Bioinformatic processing of RAD-seq data dramatically impacts downstream population genetic inference

Aaron B. A. Shafer†,[1,2], Claire R. Peart†,[1], Sergio Tusso[1], Inbar Maayan[1], Alan Brelsford[3], Christopher W. Wheat[4] and Jochen B. W. Wolf*,[1,5]

**Open Access**

Method
## Systematic bioinformatic analysis of expression levels of 17,330 human genes across 9,783 samples from 175 types of healthy and pathological tissues

Sami Kilpinen¤*†, Reija Autio¤‡, Kalle Ojala*†, Kristiina Iljin*, Elmar Bucher*, Henri Sara*, Tommi Pisto*, Matti Saarela‡, Rolf I Skotheim*§, Mari Björkman*, John-Patrick Mpindi*, Saija Haapa-Paananen*, Paula Vainio*, Henrik Edgren*†, Maija Wolf*†, Jaakko Astola‡, Matthias Nees*, Sampsa Hautaniemi¶ and Olli Kallioniemi*†

# slack

https://2019isugen462.slack.com/

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# GitHub

https://github.com/jjudson28/GEN_462_2019

On your computer:
◦ Move into the GEN_462_2019 Folder
  ◦ Example: cd Desktop/GEN_462_2019

◦ Type ls to list the folder's contents

◦ To update your repository to be consistent with what is online, type git pull and then press enter

If you are on a cart computer (or your repository has not been set up yet):
◦ Go to the website for the github repository on your browser
◦ Click the files you want to download

○Go to File, Save as in your web browser

○Choose location to save that you can find easily

○Don't append the ".txt" file ending

# Basics of R Studio

Discuss basics of R Studio: Open R Studio
- ◦ Open a file in Introductory_Materials/September3 called "Basics_of_R.Rmd"

# Reference

Wilson Sayres MA, Hauser C, Sierk M, Robic S, Rosenwald AG, et al. (2018) Bioinformatics core competencies for undergraduate life sciences education. PLOS ONE 13(6): e0196878. https://doi.org/10.1371/journal.pone.0196878