



ASKING ABOUT QUESTIONS IS REVEALING ❖❖

DNA on 10th — street art, wayfinding and font ❖❖

BIOINFORMATICS + DATA VISUALIZATION



Learning Circos

BIOINFORMATICS AND GENOME ANALYSIS

FONDAZIONE EDMUND MACH, SAN MICHELE ALL'ADIGE, ITALY, 20 JUNE 2019

DOWNLOAD COURSE MATERIALS
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A 1-day practical course in genomic data visualization with Circos. This material is part of the [Bioinformatics and Genome Analysis](#) course held at the [Fondazione Edmund Mach](#) in San Michele all'Adige, Italy.

QUICK LINKS

[Course website](#) | Circos [documentation](#) [best practices](#) [getting started](#) | [Brewer palette swatches](#) | [Color resources](#) | [Points of View](#) | [Points of Significance](#)



DAY 1

SCRIPTS

REFERENCES

UPDATES

REFERENCES

CIRCOS RESOURCES

[Circos best practices](#)

Guidelines for configuration files and data file organization.

[Circos documentation](#)

A collection of tutorials.

[Circos quick start](#)

A short introduction to Circos.

PERL TUTORIALS

[Beginning Perl](#)

Perl tutorials

[Impatient Perl](#)

Perl tutorials

[learn.perl.org](#)

Perl tutorials

COMMAND LINE TOOLS

There are [many command-line tools](#) and these are some of the most useful. You should get to know each one very well.

[cut](#)

field extractor

Extracts sections of each line based on number of characters, fields or delimiters

[gawk](#)

text processing and extraction tool

The basic function of awk is to search files for lines (or other units of text) that contain certain patterns. When a line matches one of the patterns, awk performs specified actions on that line. awk continues to process input lines in this way until it reaches the end of the input files.

[grep](#)

line searcher

grep prints lines that contain a regular expression match for a pattern

[join](#)

combines lines from two files

Merges the lines of two sorted text files based on the presence of a common field. It is similar to the join operator used in relational databases but operating on text files.

less

simple file viewer

GNU less is a program similar to more, but which allows backward movement in the file as well as forward movement. Also, less does not have to read the entire input file before starting, so with large input files it starts up faster than text editors like vi.

paste

joins files

Joins files horizontally (parallel merging) by outputting lines consisting of the sequentially corresponding lines of each file specified, separated by tabs, to the standard output. It is effectively the horizontal equivalent to the utility cat command which operates on the vertical plane of two or more files.

sed

a stream editor

sed is a stream editor. A stream editor is used to perform basic text transformations on an input stream (a file or input from a pipeline). While in some ways similar to an editor which permits scripted edits (such as ed), sed works by making only one pass over the input(s), and is consequently more efficient. But it is sed's ability to filter text in a pipeline which particularly distinguishes it from other types of editors.

sort

line sorter

sort prints the lines of its input or concatenation of all files listed in its argument list in sorted order. Sorting is done based on one or more sort keys extracted from each line of input.

tr

translate characters

Replaces or removes specific characters in its input data set

uniq

unique line extractor

Collapses identical lines to one and counts the number of runs of identical lines.

xargs

create commands from text

Builds and executes commands from standard input. It converts input from standard input into arguments to a command