Core NGS Tools Home

This is the home of the Core NGS Tools course, June 2023, at **https://wikis.utexas.edu/display/CoreNGSTools**

This workshop provides an introduction to common analysis tools and file formats currently used in NGS, with emphasis on quality assessment and manipulation of raw NGS sequences (**FastQC**, **cutadapt**), read mapping (**bwa**, **bowtie2**), the Sequence Alignment Map (**SAM**) format, and tools for manipulating **BAM** files (**samtools**, **bedtools**). Participants will gain hands-on experience using these and other NGS tools in the Linux command line environment at TACC, as well as exposure to the many bioinformatics resources TACC makes available.



- For online attendees, the Zoom URL is: **https://utexas.zoom.us/j/92348799002**
- There will be a short break each day around 10:30am
- We will provide access to recordings of each day's materials after the course is over
- Your TACC account will remain on our class TACC project allocation through June 30, 2023

Day 1: Intro to NGS, Linux and TACC

- Introduction
- Getting started at TACC – logging in
- lecture: NGS overview & technology (**2023_06-NGSintro.pdf** part 1)
- Setting up your TACC environment
- File systems and transferring files

Day 2: TACC batch system and FASTQ files

- Catch up day 1 TACC setup
- lecture: NGS Terminology (**2023_06-NGSintro.pdf**, part 2)
- TACC batch jobs
- lecture: the **FASTQ** format (**2023_06-NGSintro.pdf**, part 3)
- Working with FASTQ files

Day 3: Working with raw sequences

- lecture: Sequence QC & preparation (**2023_06-NGSintro.pdf**, part 3)
- Sequence quality control
- Trimming

Day 4: Alignment and BAM file manipulation

- lecture: Alignment to a reference (**2023_06-NGSintro.pdf**, part 4)
- The Basic Alignment Workflow
- lecture: Alignment to a reference (**2023_06-NGSintro.pdf**, part 4)
- More Alignment exercises

Day 5: Post-Alignment Analysis

- Filtering with SAMTools
- Analysis using BEDTools

Resources

- Linux fundamentals
- Core NGS Resources
- Decimal and Hexadecimal
- Data wrangling best practices