UIC | RRC | Research Informatics Core

Presents

Introduction to Bioinformatics Summer 2023 Workshop

When: June 15 – June 22 2023

Where: VIRTUAL and IN-PERSON
   Virtual: Via Zoom
   In-Person: Molecular Biology Research
            Building (MBRB), Rm 1152

Time: 9 AM to 4:45 PM

Food: Light refreshments and lunch will be provided to in person participants.

Computer Requirement: Computer with at least: 4GB RAM, 10GB free storage. Must be 64bit architecture.

Cost:
UIC/CBC: Virtual: $125/day, $550 all days
           In-person: $150/day, $660 all days

UIC Graduate Students receive 60% discount on registration, sponsored by UIC CCTS.

Non-UIC rate markup: Rush: 10%
                    External: 60%

SPACE IS LIMITED ACT NOW!!
A recording of the workshop will be made available to participants after each session.

The UIC Research Informatics Core (RIC) is presenting a five-part introduction to bioinformatics workshop. Common bioinformatics techniques and methods will be reviewed, with an emphasis on practical skills, quality control, and data interpretation in application to next-generation sequencing (NGS) data sets.

Workshop Sessions

Day 1 - Thu June 15   **Introduction to R**

Day 2 – Fri June 16   **Introduction to Linux/HPC**

Day 3 - Tue June 20   **Introduction to RNA-Seq**

Day 4 - Wed June 21   **Introduction to NGS**

Day 5 - Thu June 22   **Introduction to Metagenomics**

Please see registration form for more details

Registration (iLab login required):
go.uic.edu/RICWorkshops

In order to register you will need a UIC iLab account. Don't have an account? Get one at:
https://rrc.uic.edu/get-started/user-registration/

Cancellation Policy: Notification must be given by June 1st.
Pre-requisite policy: NGS and RNA-seq, and Metagenomics workshop days (days 3-5) assume knowledge and skills that will be covered in Linux and R workshop days (days 1-2). Registration for these pre-requisite days is strongly recommended unless the attendee is very confident in their abilities. If an attendee opts out of pre-requisite workshop days, then they assume full responsibility for the level of skill required for the later workshop days.

Topic details

R: Learn the R studio interface and programming language, including data types, basic programming, reading and writing data, installing packages, basic statistics and data visualization.

Linux/HPC: Navigate and manipulate data using the Linux command-line interface, and how to log in to a high-performance compute (HPC) cluster and manage jobs. Introduction to the BASH programming language and the nano text editor.

RNA-seq: Gene and isoform quantification and differential analysis for RNA-seq, leveraging skills from R and Linux days to build and run pipelines on an HPC cluster.

NGS: Standard analysis tools and procedures for NGS applications in the context of analyzing an ATAC-seq data set. Visualization of NGS data in genome browsers.

Metagenomics: Quantification of amplicon and shotgun libraries and a discussion of the pros and cons of each. Statistical analysis, such as alpha and beta diversity, and a comparison of taxonomic and functional quantifications.

NOTE: workshops are typing-intensive: exercises will be performed exclusively on your keyboard, without the mouse. Mastery of basic typing skills, including touch typing, is strongly recommended.