

SEQUENCE ANALYSIS BOOTCAMP REGISTRATION IS NOW OPEN

You can register at the link below:

http://www.umassmed.edu/biocore/biocore_training/registration-form/

Please feel free to forward this email to anyone you know who may be interested.

Sequence Analysis Bootcamp is a four-week course. Fall 2024 (Class dates: Aug 28th [preliminary online], September 4th, 11th, 18th and 25th, from 9:00 am – 12:00 pm in Amphitheater III for anyone interested in learning the basics of Bioinformatics with a focus on deep sequencing data analysis.

The bootcamp will mainly focus on RNA-Seq application to gene expression. First, participants will get familiar with Linux and cluster environment and how to transfer raw data using an FTP client. Then, we will have an overview and hands-on training sessions. In the overview sessions, we will describe the main computational components of gene expression analysis:

1. Alignment techniques and approaches and the impact of alignment on gene quantification;
2. Estimation of gene and isoform expression; and
3. Methods to compare samples with a focus on normalization and differential gene expression analysis.

In the hands-on portion of the workshop, we will rely on a previously published dataset to illustrate a full RNA-Seq and single-cell RNA-Seq analysis and the concepts discussed during the overview. We will guide participants through;

1. Quality assessment of the data;
2. Alignment;
3. Transcript quantification using the RSEM software and Foundry interface;
4. Differential gene expression analysis using DESeq; and
5. Typical analysis such as gene ontology, clustering, and principal component analysis using R and DEBrowser.

All participants must have a laptop with wireless connection capability. Many activities will require a browser; only Firefox and Chrome have been tested.

They also need to request an HPC account:

[https://hpc.umassmed.edu/wiki/index.php?title=Welcome to the Scientific Computing for Innovation Cluster#Requesting an Account](https://hpc.umassmed.edu/wiki/index.php?title=Welcome_to_the_Scientific_Computing_for_Innovation_Cluster#Requesting_an_Account) and join ViaFoundry Group. The cost for joining the group is \$90 per month/per lab (regardless of how many members of the lab sign up), with a 3-month minimum (\$270). After the first 3 months, you may cancel your membership by emailing biocore@umassmed.edu.

Some activities require issuing commands on a terminal. Participants running the Windows operating system must install putty which can be downloaded from: <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

We encourage all participants to get familiar with R.

The Biocore Team: Manuel Garber, Alper Kucukural, Onur Yukselen, Ozkan Aydemir