

BIOINFORMATICS AND OPEN SCIENCE SKILLS WORKSHOP REPORT

Description.

The Bioinformatics and Open Science Skills (BOSS) workshop is a virtual workshop that is part of the series of events in the "Empowering Researchers with Skills and Tools in Open Science and Bioinformatics". It is a two-week training workshop that introduces trainees to bioinformatics analysis and open science practices.

Date and Venue.

The workshop took place virtually via the zoom platform on 1st -5th November. The program started at 8:30 am EAT daily with 30 minutes allocated for technical preparation and questions before the official program began at 9:00 am.

Participants and attendance.

30 participants were selected from the 68 responses received from the call made. The call was open for 5 days. The selected participants came from countries including Kenya, Tanzania, Uganda, Somalia, Ghana, and Cameroon. The selection criteria were based on their experiences, motivation, and availability. Out of the 30 selected, we had consistent attendance from 22-25 participants over the week. They each had different experience levels in the topics which were reflected in the pre-workshop survey sent out before the workshop began.

Organizers, Instructors, and Helpers.

The organizers, trainers, and helpers joined in from different countries. The main countries include Kenya, Sweden, the USA, England, and South Africa. The main workshop organizers comprised Mike Kofia, Festus Nyasimi, and Margaret Wanjiku from the BHKi team.

We had a total of 8 instructors who handled different topics based on their expertise. Their topics and profiles are listed in the workshop GitHub repository.

Agenda.

The organizers agreed and came up with an agenda for each training day that was communicated to the instructors, participants, and helpers as follows:

Day 1:

- An introduction to sequencing technologies
- NGS data formats
- An introduction to Unix
- An introduction to high-performance computing (HPC)

Day 2:

- Advanced Unix: an introduction to SED, AWK, and bash.

Day 3:

- Quality control assessment
- Practical: Quality control assessment
- Scientific writing

Day 4:

- Sequence alignment and assembly

Day 5:

- Introduction to Git and GitHub
- An introduction to Galaxy

There were changes to the agenda on day 3 with the scientific writing session occurring concurrently with the practical session. The session was open to all and covered preprints, open access, and publishing open access.

Outcome.

Based on a post-survey sent out to participants after the workshop, our participants were moderate to very satisfied with the training of different modules. A major concern for most of the participants that responded to the post-survey was the time allocated to some modules, which they felt was not enough. Especially considering that some of them had no experience in the material being taught. However, the participants responded that the material taught would be useful for them in their work or studies.

Accessibility of material.

The training material was made available in the canvas learning platform. Data was also made available in the workshop [GitHub repository](#). Recordings were also made and uploaded to the

BHKi YouTube channel as a [BOSS Workshop playlist](#). A slack channel for participants to interact and ask questions was also created and open to participants and instructors.

Challenges faced

The following are some of the major issues noted during the event:

- For our participants, internet connectivity and power outages were the most common challenges faced by the trainees during the workshop.
- During the event, there were a few technical difficulties experienced during the training. This included access to the training high performance cluster where a few participants got locked out due to multiple login attempts which resulted in security alerts at the host institution.
- During some days there was a lot of time wasted assisting participants in installation of tools needed for sessions, even with the 30 minute allowance given in the morning to assist with any technical difficulties faced by participants.

Recommendations.

- More time should be allocated to the training, especially on the technical material.
- Have data in multiple accessible locations before the training.
- Have mandatory technical check in meetings to ensure that all participants have access to all tools and material they need for sessions.