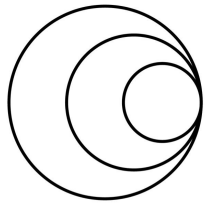# Advanced Learning and Training (ALT)

wellcome connecting science

COG-TRAIN **COVID-19 GENOMICS GLOBAL TRAINING**

Advanced Learning and Training Overview

Welcome

Aims

>   To develop good educational practice and to train or present to others
>   when you return to your institutions

Course context

>   Learning, training and presentation
>   Personal professional development
>   Viral Genomics and Bioinformatics Course

ALT Learning Outcomes

At the end of the program, the participants will be able to:

explain good educational practice

differentiate learners and trainers' roles and responsibilities,

identify and use different questioning and response techniques

explain and use effective group-work skills

select and use effective training techniques to share elements of the course materials with others

use action planning and review processes to support their professional development

Advanced Learning and Training Sessions

Session 1 focuses on

Good educational practice, reflection on learners' experiences, roles and responsibilities, learning, teaching and training, communication skills (asking and responding to questions), group work (ground rules, dynamics, and participation), and action planning

Introduction to ALT toolkit and planning template – Google sheet (received link before course)

During the week

Continue action planning, networking and informal discussions with ALT trainer and instructors.

In ALT Toolkit work on individual action plan, networking and planning template

Sessions 2 focuses on

Reviewing your progress and planning for further professional development; and prepares you to deliver training and presentations to small or large groups using the course materials on return to your institution.

Session 3 focuses 2-3 months post-course

Checking in and sharing experiences, networking

Advanced Learning and Training - Session 2

➢ Course Review

➢ Designing and Presenting Elements of the Course and Materials: Skills Development

➢ Action Planning and Professional Development

Activity - Getting feedback

Part of formative evaluation

You were asked to complete some exercises in the ALT Toolkit. That included
- Completing 3-5 individual objectives
- Identifying new connections for networking
- Completing the Learning outcomes exercise
- Providing feedback about the day's activities

Mentimeter activity
Go to www.menti.com
Use code 1470 4586

Course Review

➢ **Review Progress 1**
  ○ Individual objectives tab in the Toolkit - Please complete this
  ○ Network tab

➢ Reflection on progress – remember individual objectives set at beginning of week.

➢ Is the course meeting your objectives?

Mentimeter activity
Go to www.menti.com
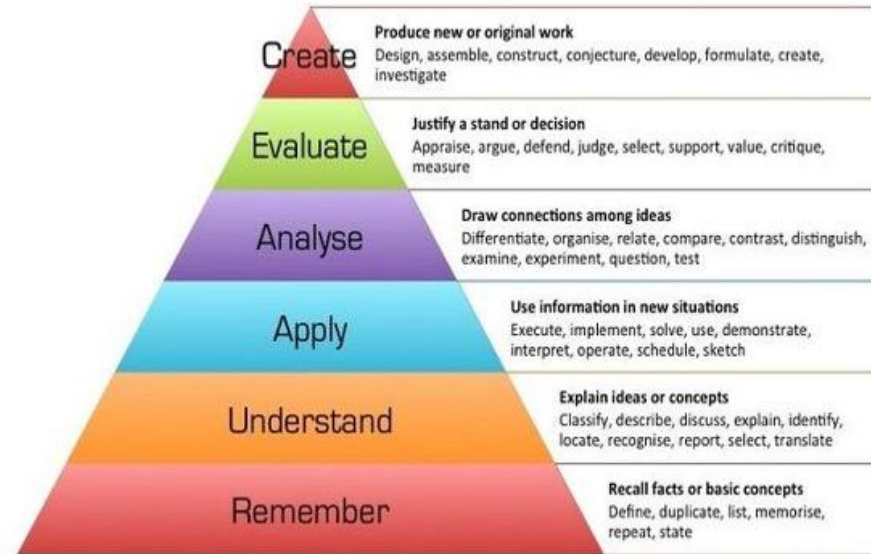Use code 1470 4586

Learning outcomes review

- Learning outcomes exercise
    - In pairs compare your answers

- Consider your own learning during the course and its application in your current work
    - In Pairs discuss, how you will be using what you have learnt in your own work

- Be prepared to give feedback on each other's aims

Viral Genomics and Bioinformatics Learning Outcomes

After completing this course, participants should be able to:

- **Apply** Unix/Linux command-line and **write basic** shell scripts for automating bioinformatics tasks
- **Recognise the different** file formats related to genome sequencing data (Illumina, Minion, and ARCTIC protocol outputs)
- **Select** an appropriate strategy for quality control of NGS data
- **Perform** reference mapping using different software (e.g. BWA, Bowtie, Novoalign, Tanoti).
- **Evaluate** genome assemblies using statistics and visualisations
- **Use** multiple de-novo assemblers for viral genome reconstruction (e.g. SPAdes, ABYSS, IDBA-UD)
- **Use** metagenomics tools such as KRAKEN and Centrifuge to detect and identify viral pathogens
- **Select** appropriate software tools to call variants from a genome assembly.
- **Compute** multiple sequence alignments and **construct** phylogenetic trees to understand viral evolution and transmission dynamics
- **Build** a pipeline for analysis, interpretation and identification of viral pathogens.
- **Identify** effective methods for disseminating knowledge and skills in viral bioinformatics.

Create
Produce new or original work
Design, assemble, construct, conjecture, develop, formulate, create, investigate

Evaluate
Justify a stand or decision
Appraise, argue, defend, judge, select, support, value, critique, measure

Analyse
Draw connections among ideas
Differentiate, organise, relate, compare, contrast, distinguish, examine, experiment, question, test

Apply
Use information in new situations
Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

Understand
Explain ideas or concepts
Classify, describe, discuss, explain, identify, locate, recognise, report, select, translate

Remember
Recall facts or basic concepts
Define, duplicate, list, memorise, repeat, state

Designing and Presenting Elements of the Course

- Audience

- What ? 'Big Question' ?   Description ?

- Content

- Learning Objectives – summary of what you want to teach

- Learning Outcomes - Remember the formula
  Formula for writing LOs: Use an **active verb** (what participants will be able to do) + **object** + **qualifying phrase** to provide a context.

- Planning Template – Google sheets

Designing and Presenting Elements of the Course

Discussion

- In pairs, discuss opportunities and challenges for sharing elements of the course and materials in your own context?

- In Pairs, share *'with who, what, and when'* you plan to disseminate elements of the course and materials with others – in your home institute….

- Be prepared to give feedback

Action Planning and Professional Development

- Identify and set Actions with reference to the course

- Apply what was learnt on course in research and work

- Train others? Present to others, train others?

- Networks and Networking – Plans

Any questions?

Thank you!