



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

**Staff Training**

**Day 1 Part 1 - Introduction**



**H3ABioNet**

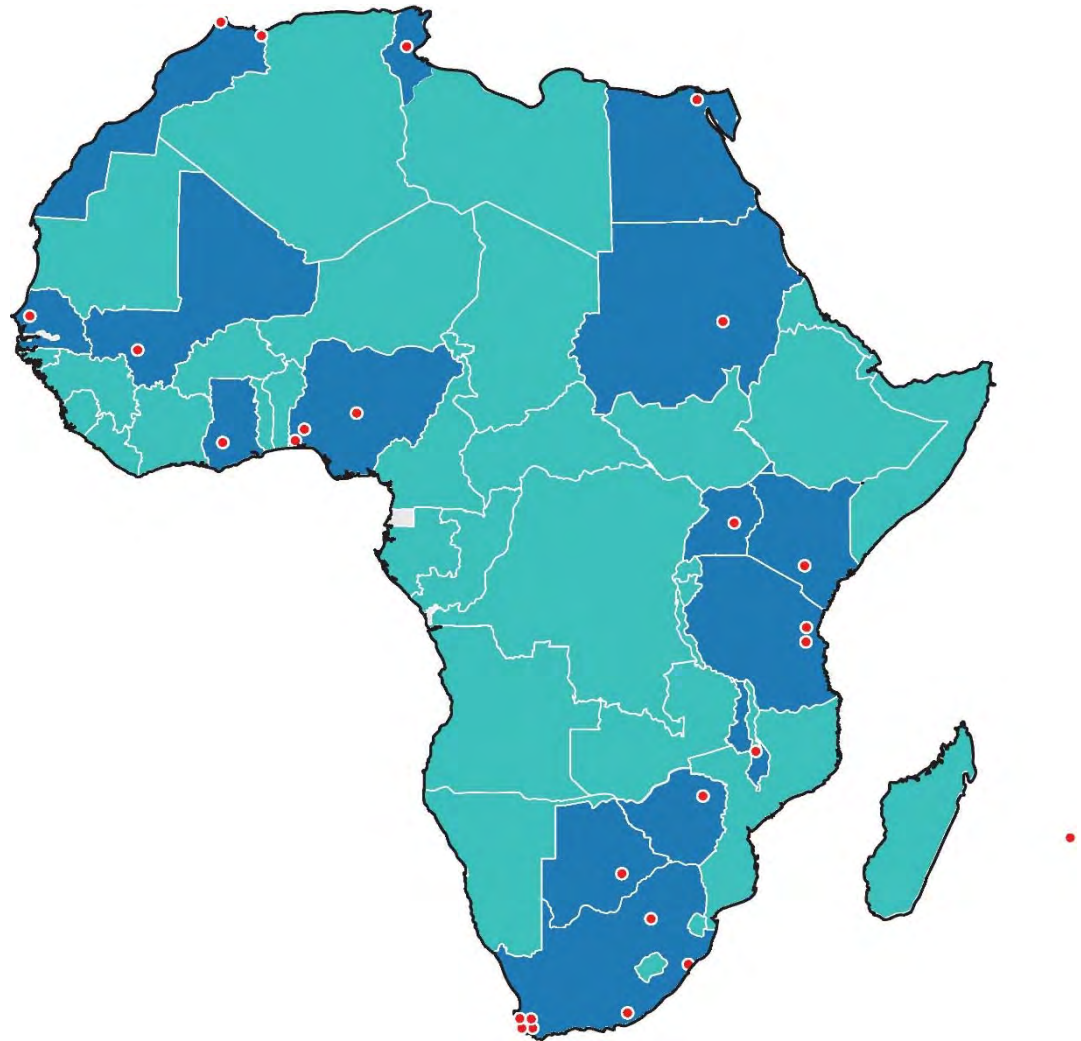
Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# H3ABioNet

- Africa-wide network of bioinformatics institutions
- 28 nodes
- Nodes=bioinformatics research groups
- 17 countries
- 16 African countries
- NIH funded
- Part of H3Africa
- Develop bioinformatics capacity in Africa



<http://h3abionet.org/home/consortium>

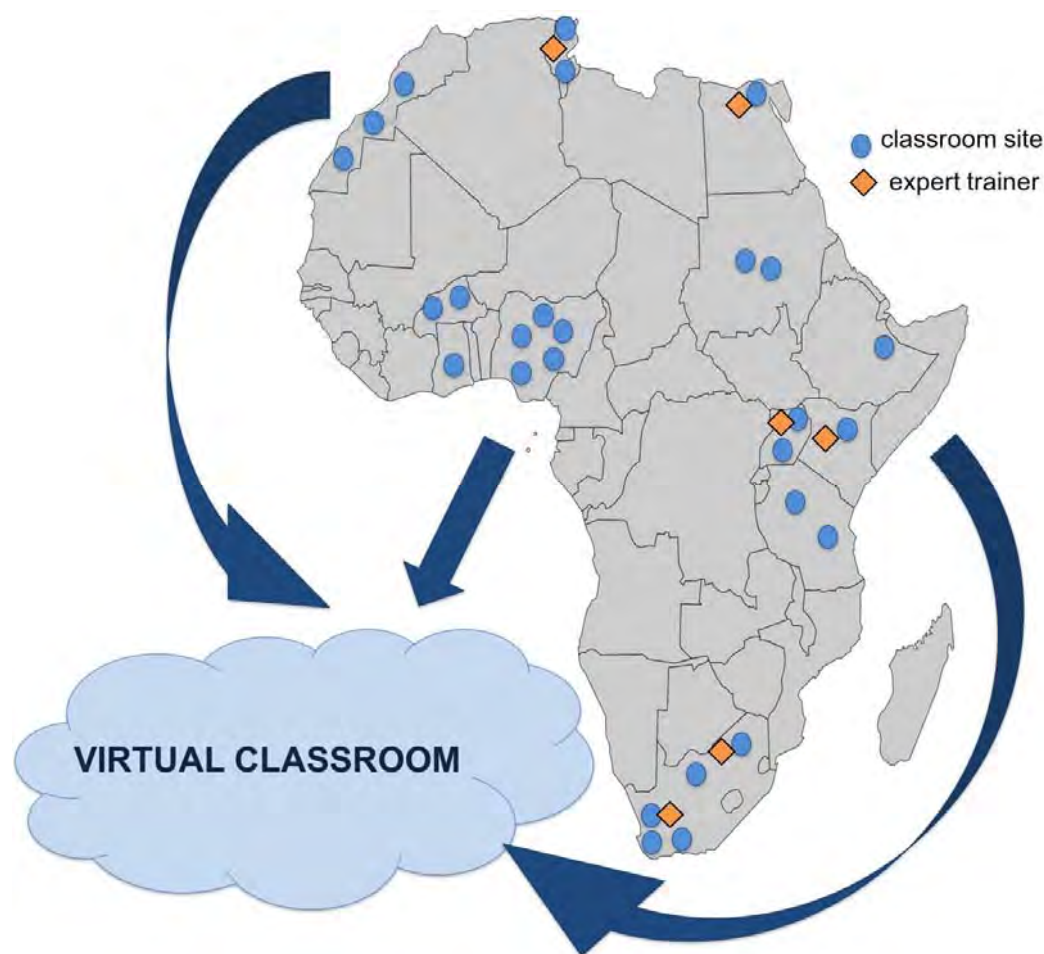
# Introduction

- Need for intermediate training
- You are among the first to take the course!

## Aims:

- To equip participants with the knowledge and skills to perform analyses on 16S microbiome data.
- To allow participants to gain knowledge and practical experience through theoretical and practical sessions

# Int\_BT community



# Why staff training?

- Explain course rationale and logistics
- Provide training on online platforms
- Establish a team atmosphere within and across classrooms
- Provide training on facilitation techniques

# Before we start...

- Make sure vula account activated
- Make sure you can access staff site
- ~~Camera for team photo~~

# Logistics for staff training

- 2 days (3 or 4 hours per day) in each local classroom with local team
- Follow day plans for each day – will instruct you exactly what to do
- Day 2 – training will be done live via zoom
- Activities



# By the end of today

- Meet your classroom teammates and be familiar with your training room
- Establish your staff team and know how you might deal with certain challenges
- Understand everyone's responsibilities
- Develop a staff timetable
- Understand the course rationale and logistics
- Be comfortable with vula and adobe connect
- Learn some facilitation techniques



# Next

Watch video labeled:  
Day 1 Part 2



# H3ABioNet

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

## **Staff Training**

### **Day 1 Part 2 – Meet your local team and setting ground rules**



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# Meet your local team

## Activity 1 – get to know each other (10 minutes):

1. Get into pairs (or a group of 3 if there is an odd number of people). Pair with someone that you do not know very well, if possible.
2. Have a chat to get to know each other. Make sure that you find out at least 3-5 things about your partner (5 mins).
3. After 5 minutes of chatting, organise all your chairs into a circle/semi circle so that the whole group is sitting together.
4. Introduce your partner to the rest of the group (for example 'This is... s/he is... s/he enjoys...'). If your group is very small (only 2/3 people), then tell your partner what you remember about them from their description of themselves.

**~~Press pause NOW~~**  
**~~and complete Activity 1~~**

# Ground Rules

## Why create ground rules?

- How we behave together
- No assumptions – ensure everyone is on the same page
- Setting expectations

‘Very often new ground rules come out of retrospectives. For example a [team] might have encountered issues with some members making decisions on their own and after a discussion about how to avoid this in the future they decide to add the ground rule “We make decisions together” to the list of rules.’

<https://nomad8.com/team-ground-rules/>

# Ground Rules

- **Examples (only suggestions)**
- One person speaks at a time
- All team members are equals
- Address conflict by dealing with the issue not the person
- Notify the team in advance if you will be absent
- Be a participant, not a lurker
- Have fun, but not at the expense of someone else's feelings
- Be present, both physically and mentally
- <https://www.askteamdoc.com/setting-team-ground-rules/>

# Ground Rules

## Activity 2 – steps for starting your list of ground rules (15 minutes):

1. As a group, brainstorm what is important to each member in terms of acceptable behaviour:
  1. Select a scribe
  2. Scribe to write down ALL suggestions in a place where everyone can see (suggestion: create a google document and project it on the wall/ TV screen – create this document in your IBT google folder) (5 mins)
2. As a group, decide on the top 5-7 suggestions (vote). Talk through each item to ensure each team member has a clear understanding and agrees. When you finalize your list, get confirmation from each member by having them raise their hand to physically acknowledge they agree to abide by the group behaviours. (10 mins).
3. Type up the finalised list and share with each staff member (suggestion: share via google docs).

# Next

Watch video labeled:  
Day 1 Part 3





# H3ABioNet

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

## **Staff Training**

### **Day 1 Part 3 – Course background**



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# Skills-based curriculum

- **Learning Objective:** knowledge learned without implementation (content covered in the lecture component of contact sessions)

**vs.**

- **Learning Outcome:** measurable - skills gained (covered in the practical assignment component of contact sessions)
- Important for participants to be able to go out and perform the analyses on their own after the course
- Mapped to specific ISCB competencies alongside trainers

# Competencies

- Competencies are bundles of the essential knowledge, skills, and abilities (KSAs) required to achieve an acceptable level of performance, while learning objectives are specific to a course of instruction. A learning objective is a very specific statement that describes exactly what a participant will be able to do in a measurable way after completion of the course. By accomplishing the objectives, the individual develops the necessary competencies.

## Leon (bioinformatics user)

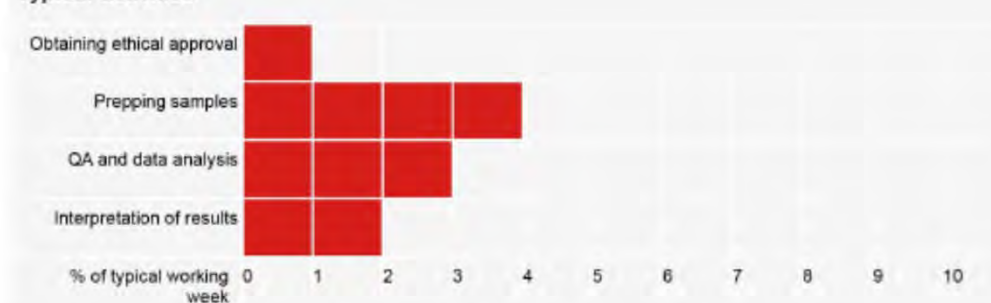
Leon is on his second postdoctoral fellowship, working on quorum sensing in bacteria. "I'm using a combination of transcriptomics, proteomics and metabolomics to understand these pathogenic changes better" he explains. "I end up with big spreadsheets of protein or gene IDs and I'm trying to piece together which signaling pathways are involved in flipping to the pathogenic state". He has been on an introductory Unix course but is much more comfortable with GUIs than with the command line. "I just have a visual brain", he says.



### Career timeline



### Typical activities



### Distribution of time between bench-work and computational work



### Preference for using GUI vs command line



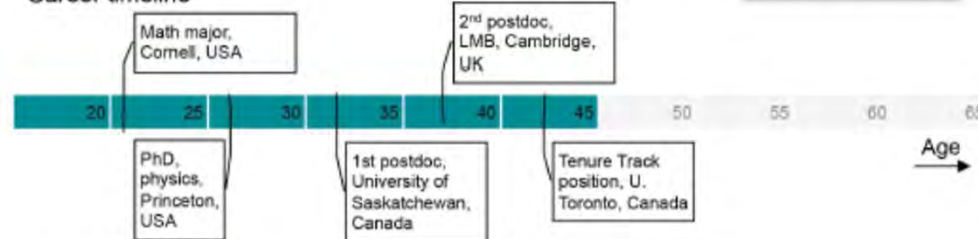
<https://doi.org/10.1371/journal.pcbi.1003496>

## Martha (bioinformatics scientist)

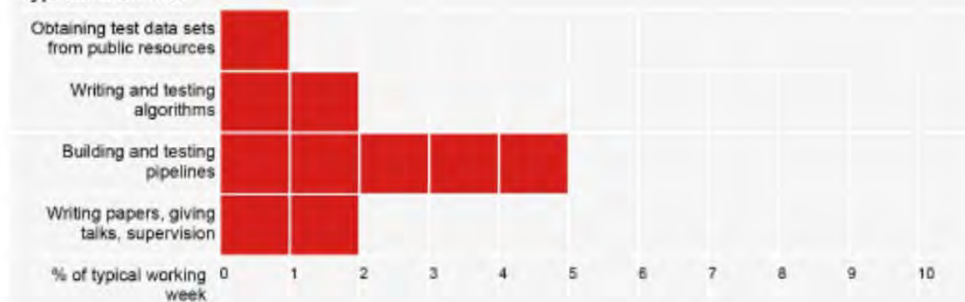
Martha is a senior bioinformatician in an international structural genomics consortium. Her biggest project is on predicting the functions of proteins whose structures have just been solved; she's building a structure-to-function prediction pipeline for the project. This is funded partly by the NIH and partly through industrial funding. She also has a fascination for predicting structure and usually has a student or two working on structural prediction projects.



### Career timeline



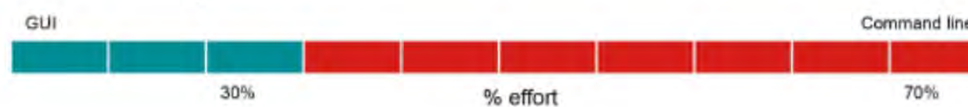
### Typical activities



### Distribution of time between bench work and computational work



### Preference using for GUI vs command line



<https://doi.org/10.1371/journal.pcbi.1003496>

# Competencies

Persona: Bioinformatics Scientist				
16S rRNA Microbiome Intermediate Bioinformatics Training_Mapping				
Competency/ies	Bloom's Taxonomy	Knowledge	Skills	Attitudes
General biology	Comprehension	K1, K2, K3	S2, S3	A1,A2
Depth in at least one area of biology (e.g., evolutionary biology, genetics, molecular biology, biochemistry, anatomy, physiology)	Comprehension	K1, K2, K3	S1, S2, S3	A1, A4
Details of the scientific discovery process and of the role of bioinformatics in it	Comprehension	K1, K2, K3, K4, K5	S3, S4, S5	A1, A2, A3, A4
Biological data generation technologies	Comprehension	K1, K2, K3, K4	S1, S2, S3 S4	A1, A2, A3, A4
Statistical, machine learning and data science research methods in the context of molecular biology, genomics, medical, and population genetics research.	Analysis	K1, K2, K3, K4, K5	S1, S2, S3, S4, S5, S6	A1, A2, A3
Data management	Application	K1, K20	S31, S33, S2	A51
Bioinformatics tools and resources and their usage.	Analysis	K1, K4, K5	S1, S2, S3, S4, S5, S6, S7, S8	A1, A2, A3, A4, A5
Fundamentals of computer science theory	Application	K1, K2, K3, K4, K5, K6, K7, K8, K9	S1, S2, S3, S4, S5	A1, A2, A3, A4, A5
Human-computer interaction (HCI)	Analysis	K3, K6	S2	A1
Scripting and programming appropriate to the discipline	Analysis	K1, K2, K4, K5, K6, K8, K9, K10, K11	S37, S1, S38, S39, S40	A1, A2, A3, A4, A5



# Modules

Introduction to the command line and R



Gerrit Botha, H3ABioNet,  
University of Cape Town



Katie Lennard, H3ABioNet,  
University of Cape Town

Bioinformatics pipeline - The theory



Samson Kilaza, Dar es Salaam  
Institute of Technology

16S analysis pipeline



Imane Allali, H3ABioNet,  
University of Cape Town

Downstream analysis in R

Introduction to the microbiome and study design – why 16S



Shantel Claassen-Weitz,  
University of Cape Town

Sample collection, extraction and library prep for 16S NGS analyses



# Next

For more information on course logistics, watch video labelled:  
Day 1 Part 4



# H3ABioNet

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

## **Staff Training**

### **Day 1 Part 4 – Logistics; how will the course run**



**H3ABioNet**

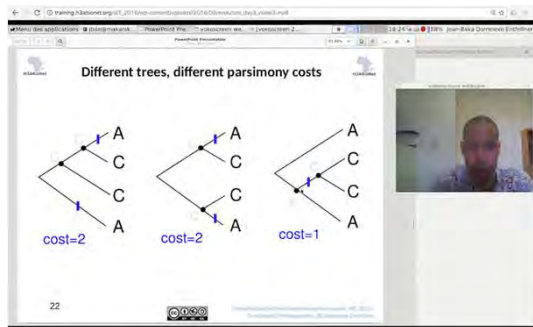
Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# Course design

## Prerecorded lectures by experts - distance learning



Virtual  
classroom



## Local Classrooms - face to face



- Videos to become available on the course website at least a few days before each contact session
- Head TA/ sys admin to ensure that the videos have been downloaded ahead of each contact session
- TAs to familiarize themselves with content before the contact session

- Bi weekly contact sessions
- Local administrative and academic support
- TAs and sys admin needed at every session

- Practical assignments
- Module assessments
- Question and discussion forums
- Feedback forms

# Contact session layout

## Typical day plan

time	activity
10:20 CAT	Sign in to Adobe Connect
10:30 CAT	Introduction (in Adobe Connect) webcams activated! <ul style="list-style-type: none"> <li>Meet the featured classroom</li> </ul>
10:40 CAT	Watch lecture recordings (in classroom)
12:30 CAT	break
13:00 CAT	Work through practical assignment (trainer will be available during this time to answer questions via Adobe Connect chat or Vula forums)
14:00 CAT	Ask the trainer <ul style="list-style-type: none"> <li>Meet the trainer</li> <li>Practical session wrap up</li> <li>Q&amp;A</li> </ul>

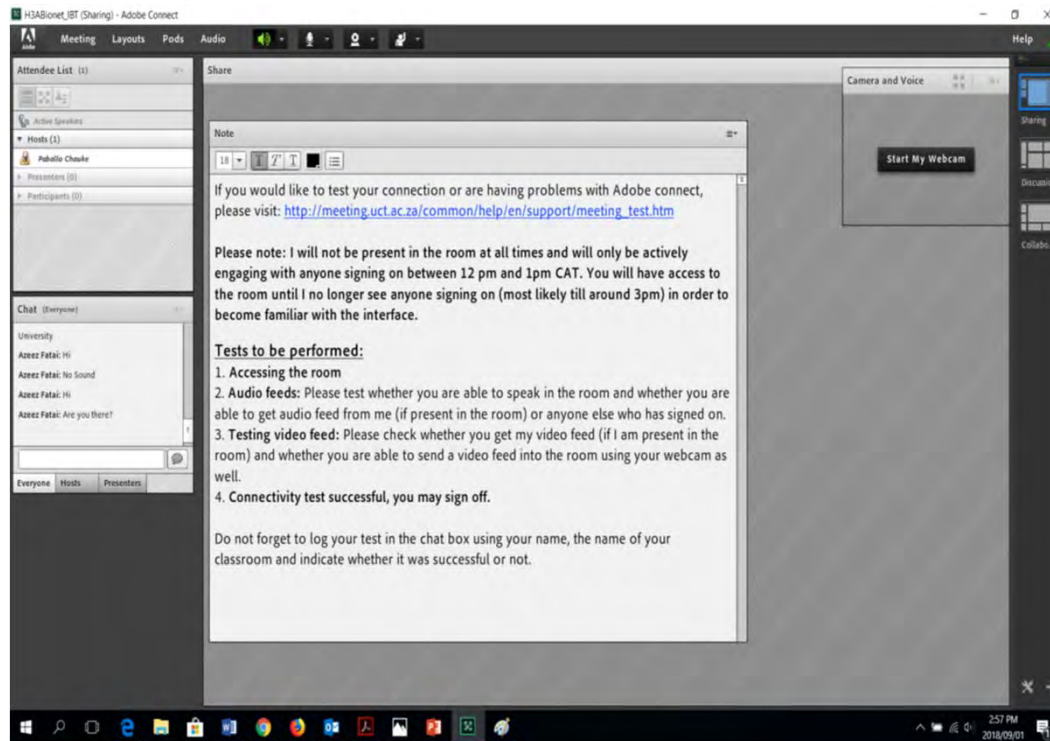
### TA responsibilities during contact sessions:

- Answer queries about the lecture recordings and practical assignments (tips and tricks for facilitating will be covered in tomorrow's session)
- Encourage participants to ask questions via Adobe Connect or via Vula forums
- Record attendance
- Engage and make yourself available

### Sys admin responsibilities during contact sessions:

- Ensure that projector is set up
- Log into Adobe Connect room
- Ensure that all the computers are working
- Troubleshoot any tech issues – slack group

# ~~Adobe Connect~~ -> Zoom

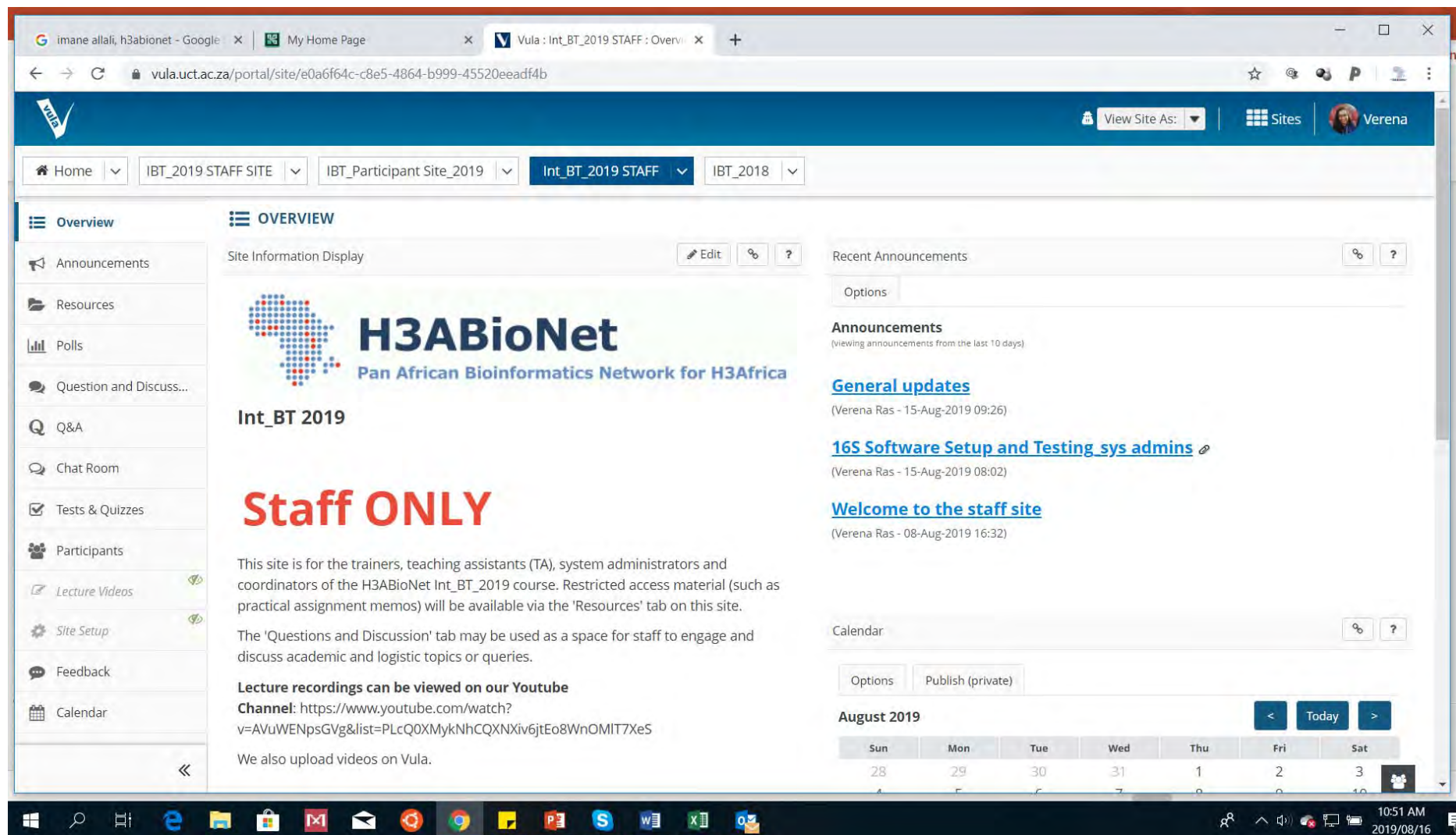


The url for the **IBT meeting room** in **Zoom** will be displayed to you once you register on the circulated link.

- ~~One login per classroom (use classroom acronym e.g. UCT-type in the chat room to name your institution)~~
- Wait moderator approval- not necessary

**Please note:** the Int\_BT meeting room will only be available during contact session time or by prior arrangement with the Int\_BT core team.

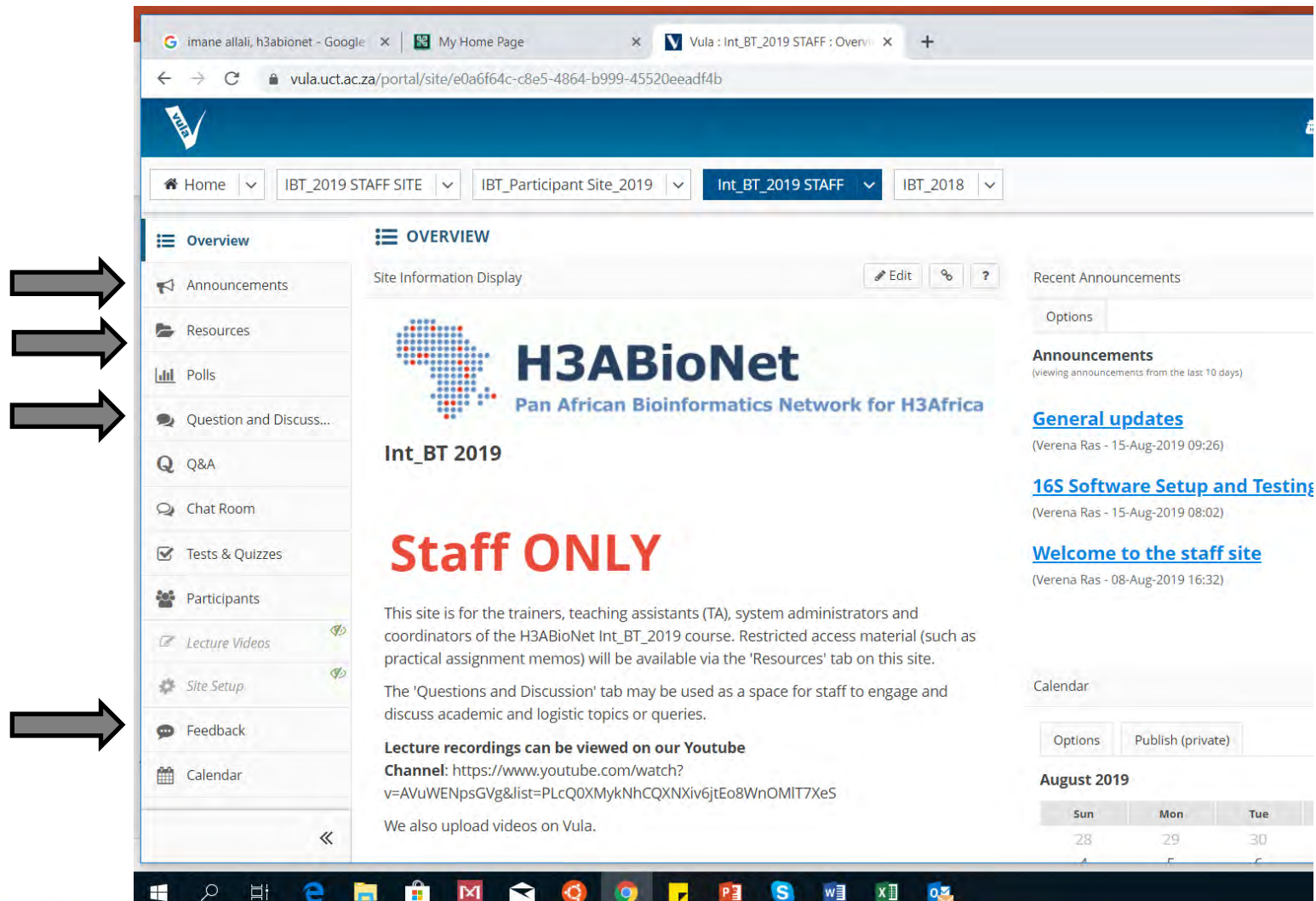




The screenshot shows a web browser window displaying the H3ABioNet Int\_BT\_2019 Staff Site. The browser's address bar shows the URL: `vula.uct.ac.za/portal/site/e0a6f64c-c8e5-4864-b999-45520e9ad4b`. The site's navigation bar includes a 'View Site As:' dropdown, a 'Sites' button, and a user profile for 'Verena'. Below the navigation bar, there are tabs for 'Home', 'IBT\_2019 STAFF SITE', 'IBT\_Participant Site\_2019', 'Int\_BT\_2019 STAFF', and 'IBT\_2018'. The 'Int\_BT\_2019 STAFF' tab is selected.

The main content area is titled 'OVERVIEW' and 'Site Information Display'. It features the H3ABioNet logo and the text 'Pan African Bioinformatics Network for H3Africa'. Below this, the title 'Int\_BT 2019' is followed by 'Staff ONLY' in large red letters. A paragraph explains that the site is for trainers, teaching assistants (TA), system administrators, and coordinators of the H3ABioNet Int\_BT\_2019 course. It also mentions that restricted access material will be available via the 'Resources' tab. A section titled 'Lecture recordings can be viewed on our Youtube Channel:' provides a link to a YouTube channel: `https://www.youtube.com/watch?v=AVuWENpsGVg&list=PLcQ0XMykNhCQXNXiv6jtEo8WnOMIT7XeS`. It also states that videos are uploaded on Vula.

On the right side, there is a 'Recent Announcements' section. It includes a link for 'General updates' (dated 15-Aug-2019 09:26), a link for '16S Software Setup and Testing\_sys admins' (dated 15-Aug-2019 08:02), and a link for 'Welcome to the staff site' (dated 08-Aug-2019 16:32). Below the announcements is a 'Calendar' section for August 2019, showing a grid of dates from Sunday to Saturday.





# For participants to pass the course...

In order to pass the course, participants are required to:

- Attend all contact sessions.
- Submit 90% of practical assignments by the relevant hand-in date.
- Submit assessments by the relevant hand-in date and obtain a minimum grade of 60% overall for the assessments.

# Consolidation Sessions

- Every few weeks
- A mental 'breather'
- Explore real world relevance of a topic
- Group exercise
- Submit response via Vula forums



<https://www.ndtv.com/entertainment/kangana-ranauts-mental-hai-kya-release-date-postponed-because-manikarnika-report-2000633>

# What can you bring and what can you learn?

## Activity 3 (10 minutes) :

1. Take 5 minutes to write down:
  1. 3 things that you are good at/ have experience in and that you can help others with.
  2. 3 things that you would like help/ support with.
2. After 5 minutes, if not already in a circle, move your chairs so that everyone is sitting in one circle.
3. Give each person in the circle an opportunity to share what they wrote down. (Remember your ground rules when listening to others 😊 )
4. Suggestion: write down what each person is willing to
  - help others with and share this document with the staff team to use as a reference for who to ask for help.

# Next

Now watch the video labelled:  
Day 1 Part 5



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

## **Staff Training**

# **Day 1 Part 5 - Commitments and Responsibilities: It's a two way street**



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# Core team commitments

Commits to provide

- Support for Adobe Connect
- Support for Vula usage
- Provide lecture material, practical assignments and
- other course material
- Support for challenges that classrooms encounter
- Some support for technical issues
- Updates on course modules, trainers and logistics
- Grading of assessments
- Guidance on creating a community atmosphere across
- classrooms

# Class registers and general “house-keeping”

example classroom register

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

fx present

	A	B	C	D	E	F	G
1				Date			
2	first name	last name	email	9.05.17	11.05.17	16.05.17	18.05.17
3	participant 1			absent			
4	participant 2			present			
5	participant 3			present			
6	etc						
7							
8							
9							
10							



# Staff registers and scheduling

Each classroom should determine a schedule for the TAs for each contact session

- Ensure that the participant to TA ratio is reasonable (i.e. 1 TA:10 participants)
- We have provided a Google spreadsheet template for doing this in your classroom Google drive folder
- Each classroom should fill out this Google spreadsheet together with the TAs
- The head TA and Sys Admin should be present or contactable during every contact session

# Communicating with the core team

- Queries from participants should be attempted to be resolved locally
- Use Vula forum if appropriate
- If you cannot resolve the issue locally, contact
- the Int\_BT core team via Vula or email
- Tackle some approaches on how to do this

# Activity to deal with challenges


- As a group brainstorm potential challenges that might arise
- Make use of the “ground rules” brain storming session outlined in

















- da
  - Go
  - If
  - st
  - Se
  - te
  - Re
- If your classroom encounters a challenge, have a look at the Challenges and Solutions thread**
- Other classrooms may have anticipated similar challenges and may have suggested a feasible solution for your classroom**
- template.docx


- Also cut and paste your top 5 challenges and solutions to:  
Int\_BT\_2020 STAFF site -> Question and Discussion Forums -> Staff Training -> Challenges and Solutions


# Vula Questions and Discussion Forum

<<

 View Site As: ▼

-  Overview
-  Announcements
-  Calendar
-  Course Outline
-  Resources
-  **Questions and Discussion Forum**
-  Chat Room
-  Assignments
-  Tests & Quizzes
-  Gradebook Classic
-  Participants
-  Search
-  Site Setup ✔
-  Messages
-  Site Stats
-  Lecture Recordings and The Classrooms



REPLY TO INITIAL MESSAGE 


[Forums](#) / [Module 7: Molecular Evolution and Phylogenetics](#) / [Session 4](#) / [Bootstrap values](#)

View by Conversation ▼

< Previous Conversation
Next Conversation >

[Bootstrap values](#)


(06 Oct 2016 11:52 AM) - Read by: 16

 Reply
Email
Grade
Edit
Delete Message


What are the bootstrap values to report for academic work? I am currently inferring phylogenies using maximum likelihood methods (PHyML and RAxML programs) but I am unsure of the values to report. Phylogeny experts are not unanimous on a specific bootstrap threshold, with some saying that bootstrap values above 50% are good while others sticking to 70% and above. Kindly assist. Thanks


[Re: Bootstrap values](#)

Oct 2016 12:41 PM) - Read by: 14

 Reply
Email
Grade
Edit
Delete Message


Hello, that's a good question. So far nobody has undertaken the work to associate meaningful p-values with standard bootstrap proportions (BP), so there are only rules-of-thumb out there to decide whether a branch is "well supported" or not. The threshold I have been hearing of is rather 80% than 50% or 70%, though, but the threshold you want to take into account depends on many factors, primarily the type of data (is there lots of phylogenetic divergence in the dataset or not? If sequences are far apart from each other you will tend to be content with lower BP than if you are dealing with a clean alignment with reduced variability). The depth in the tree is also a factor to take into consideration: you will be more demanding in terms of bootstrap support for branches relatively close to leaves (outer branches) than for inner branches: a BP of 70% only on a branch leading to a cherry (two taxa distant of two edges) is an indication of a poor phylogenetic signal, whereas if you get 70% on a deep branch of the tree, I would say it is significant enough to consider that branch as relatively well supported.

So the short answer is: rule of thumb and comparison to other papers dealing with the same type of data. Talk to a biologist who is a specialist of phylogenies similar to the one you are battling with. 



## H3ABioNet

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# Next

What the video labelled  
Day 1 Part 6



# H3ABioNet

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT**

## **Staff Training**

### **Day 1 Part 6 – Team Biographies**



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras



# Forming a community

- The success of the course is based on developing a sense of community between classrooms
- Leverage on the fact that you are part of a larger community from diverse backgrounds all with a common interest in teaching and learning bioinformatics
- Easier to do this when you can put faces and a bit of context to your colleagues across the continent

# Team Biography

- We have provided instructions and a template for generating the biography here:
- Int\_BT\_2020 STAFF site -> Resources -> Staff Training -
- > Int\_BT\_2020 staff training day 1 part 6 template.docx
- A single biography should be uploaded for each team – elect a person to upload the biography and photograph to Vula on behalf of the classroom

# Have fun and I will see you next time!



# H3ABioNet

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT\_2019**

# Staff Training

## Day 2 Part 1



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

# By the end of today...

- Feel a part of the wider Int\_BT staff body
- Understand how classrooms might support each other
- List at least 3 good facilitation practices
- Describe at least 3 facilitation techniques and will know how to implement them
- Have an idea of how you might stimulate engagement (with and across classrooms and with the local bioinformatics community)
- Navigate and use Int\_BT online platforms, namely: *Vula*, the Int\_BT website site, Youtube, and *Adobe Connect*

Sign onto vula and read some of the biographies of the other classrooms

Take 10 mins to do this

Then sign onto adobe connect to meet some of the other classrooms!

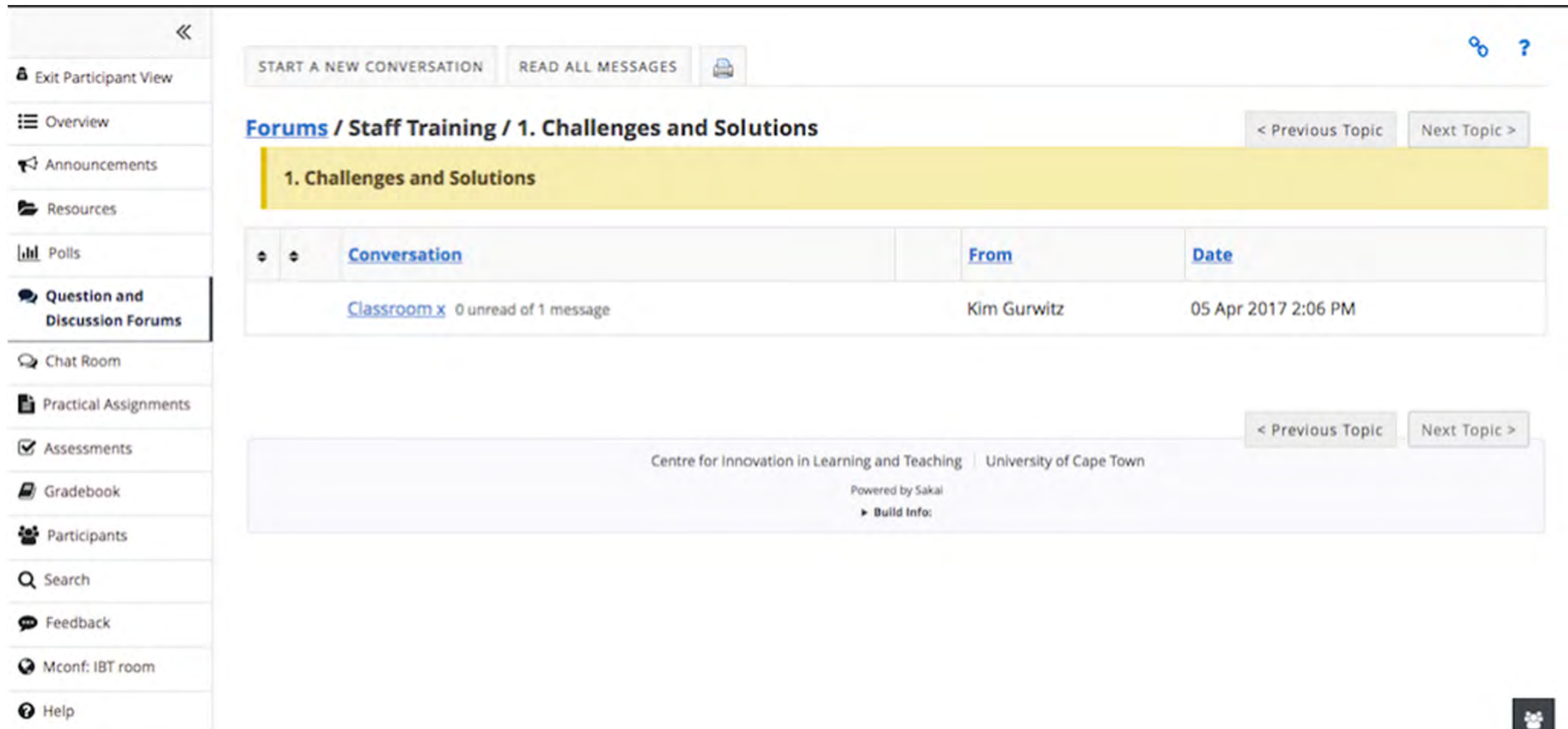
Pause the video at this point and come back to it after the adobe session!



# Sharing Solutions

- **Activity (10-15 minutes):**
  1. Use the projector system in your classroom to project the Vula interface (log in using any staff member's account)
  2. Navigate to Int\_BT STAFF -> Question and Discussion Forums -> Staff Training -> Challenges and Solutions
  3. As a group, read through the challenges and corresponding solutions for each classroom.
  4. As a group, respond to 3 posts with a solution to a challenge raised in that post - for some of the classrooms, their might be challenges with no solution. For other challenges, your staff team might have a different solution to the one proposed in that post.
  5. Consider responding to posts that do
    - not yet have any comments
    - In order to respond to the post...

# Responding to a Vula Forum post



The screenshot displays the Vula Forum interface. On the left is a sidebar with navigation links: Exit Participant View, Overview, Announcements, Resources, Polls, Question and Discussion Forums (highlighted), Chat Room, Practical Assignments, Assessments, Gradebook, Participants, Search, Feedback, Mconf: IBT room, and Help. The main content area shows a forum titled "Forums / Staff Training / 1. Challenges and Solutions". Below the title is a yellow banner with the text "1. Challenges and Solutions". A table lists forum conversations with columns for Conversation, From, and Date. The first entry is "Classroom x" with 0 unread of 1 message, from Kim Gurwitz, dated 05 Apr 2017 2:06 PM. At the bottom, there is a footer section with the text "Centre for Innovation in Learning and Teaching | University of Cape Town", "Powered by Sakai", and a link to "Build Info".

START A NEW CONVERSATION READ ALL MESSAGES

Forums / Staff Training / 1. Challenges and Solutions

< Previous Topic Next Topic >

1. Challenges and Solutions

Conversation	From	Date
<a href="#">Classroom x</a> 0 unread of 1 message	Kim Gurwitz	05 Apr 2017 2:06 PM

< Previous Topic Next Topic >

Centre for Innovation in Learning and Teaching | University of Cape Town

Powered by Sakai

► Build Info:

# Responding to a Vula Forum post

<<
Exit Participant View
Overview
Announcements
Resources
Polls
Question and Discussion Forums
Chat Room
Practical Assignments
Assessments
Gradebook
Participants
Search
Feedback
Mconf: IBT room
Help

REPLY TO INITIAL MESSAGE

Forums / Staff Training / 1. Challenges and Solutions / Classroom x

View by Conversation

< Previous Conversation
Next Conversation >

Classroom x

Kim Gurwitz (05 Apr 2017 2:06 PM) - Read by: 1

Reply

IBT classroom name: Classroom x

Country: Country x

Top 5 Challenges and Solutions:

Challenge	Solution
1. challenge 1	1. solution 1
2. etc	2. etc
3.	3.
4.	4.
5.	5.


# Responding to a Vula Forum post

\* Reply Title

Re: Classroom x

Message [Insert original text](#) Word Count:

Source



Attachments

No attachments yet

Add attachments

Post Cancel

# Next

Watch the video labelled  
Day 2: Part 2



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa

**16S rRNA Microbiome Intermediate Bioinformatics Course:**

**Int\_BT\_2019**

# **Staff Training**

## **Day 2 Part 2 – Tips and Tricks**



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras



# Teacher vs. facilitator

## Activity

- List 3 good facilitation practices and why you think they are effective. Post it onto vula forums under “good facilitation practices”



**H3ABioNet**

Pan African Bioinformatics Network for H3Africa



16S rRNA Intermediate Bioinformatics Course: Int\_BT  
Verena Ras

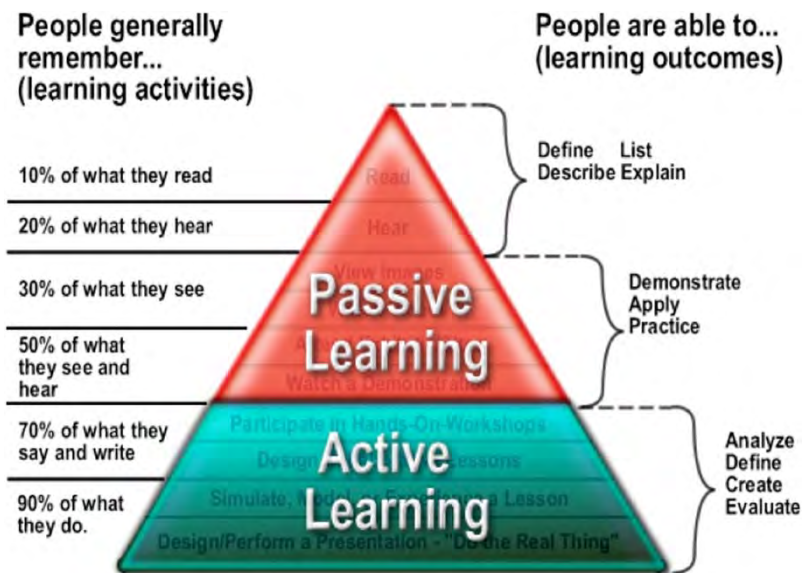
# Tips and Tricks

## Tips and tricks for **facilitating active learning**

**Facilitating:** a way of interacting, asking questions, valuing opinions, information flowing in all directions

**Active learning:** learning by doing

*"I hear and I forget. I see and I remember. I do and I understand."* – Confucius

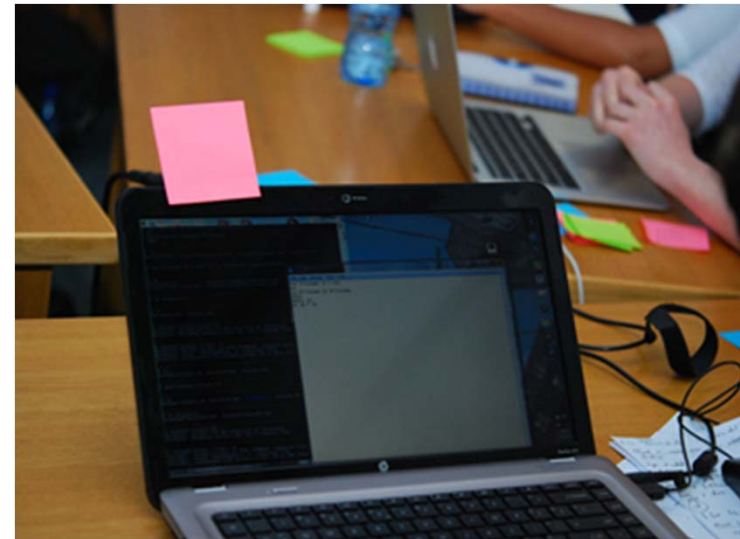
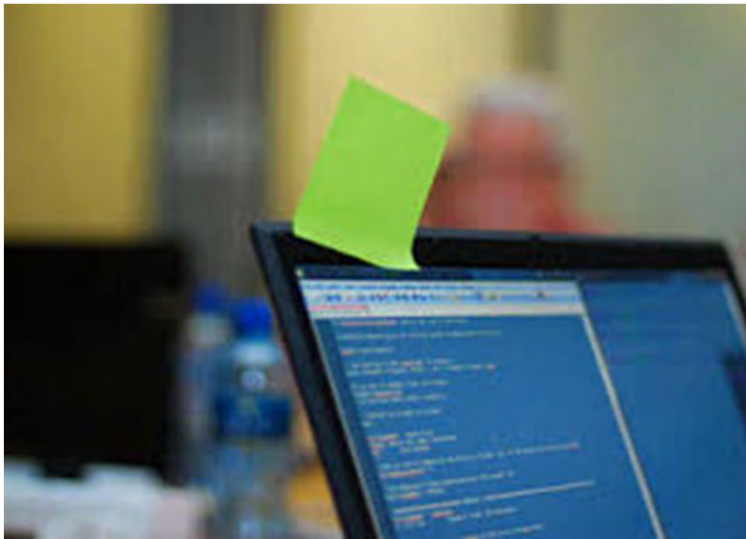


<http://www.crlt.umich.edu/tstrategies/tsal>

# Tips and Tricks

## 1. Green and Red sticky notes

<http://swcarpentry.github.io/instructor-training/15-practices/>



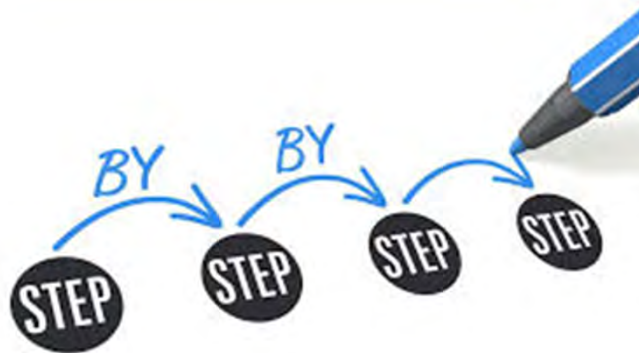
<http://www.nwu.ac.za/eresearch/news/nwu-researchers-learn-about-tools-reproducible-research>

# Tips and Tricks

## 2. Take it slow and explain step-by-step

- The way you speak to people and answer questions matters!
- A bit of kindness and sensitivity goes a long way (remember back to when you just started out in bioinformatics...)

Motivation vs. Demotivation: <http://swcarpentry.github.io/instructor-training/16-motivation/>



# Tips and Tricks

## 3. Gamification (for recap)

- “Make a list of concepts/keywords and write it on the whiteboard (or a flipchart). You may also have cards stuck on the wall of the classroom with terms written on them.
- Throw a light and soft object to a participant, who will have catch the object, stand up, pick a term from the list and explain its meaning (or usage) in a few sentences (not more than 20-30 seconds).
- After the explanation, the participant will throw the object to another participant. Continue until the end of the list.”

#GTPB – The Gulbenkian Training Programme in Bioinformatics #ELIXIR

– EXCELERATE Train-the Trainer subtask

[https://github.com/Pfern/TtT-in-Portugal-2016/blob/master/TtT\\_session\\_2.md#games](https://github.com/Pfern/TtT-in-Portugal-2016/blob/master/TtT_session_2.md#games)

# Tips and Tricks

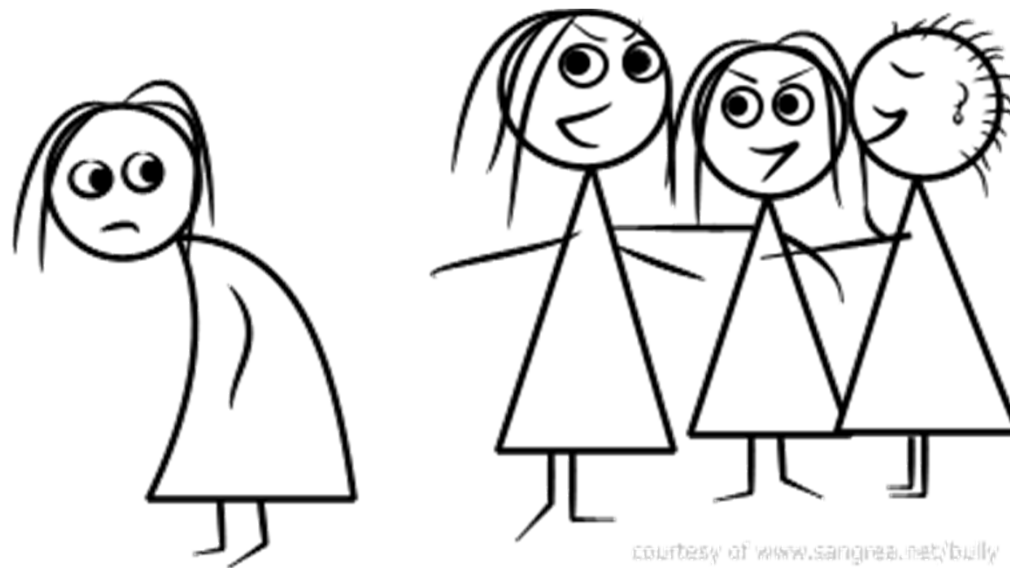
4. Encourage more advanced participants to help people next to them.





# Tips and Tricks

## 5. Don't 'munch in a bunch'



# Tips and Tricks

For more tips and tricks:

<http://swcarpentry.github.io/instructor-training/>

<https://software-carpentry.org/blog/2016/04/tips-tricks-live-coding.html>

<https://swcarpentry.github.io/instructor-training/15-practices/>

# Next

15-20 minute BREAK

Next session: Live session in Adobe – Software installations and setup

Please make sure you are signed on to adobe