Introduction Week
Day 1 Part 1 – Welcome to the course!
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

16S rRNA Intermediate Bioinformatics Course: Int_BT
Verena Ras
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
By the end of today, you will...

• know the physical location of your training room
• meet and get to know your classroom staff and fellow classmates
• know how the IBT course will run
• be introduced to course website, Vula, and Adobe Connect
• understand the requirements for obtaining the course letter of completion
Logistics

• Follow day plan
• Watch pre-recorded videos
• Videos will contain instructions for activities
• Any questions? Ask via Vula forums
Next

Watch video labeled:
Day 1 Part 2
Introduction Week
Day 1 Part 2
Meet your classroom staff and classmates
Get to know each other

Activity 1 (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.

5. Important: classroom staff, get involved!
Watch videos labeled:
Meet the Core Team and Part 3
16S rRNA Microbiome Intermediate Bioinformatics Course: Int_BT_2019

Introduction Week

Day 1 Part 3 – Course background
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

### Persona: Bioinformatics Scientist

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

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Next

For more information on course logistics, watch video labelled:
Day 1 Part 4
16S rRNA Microbiome Intermediate Bioinformatics Course:
Int_BT_2019

Introduction Week
Day 1 Part 4 – Logistics; how will the course run
Course design

Prerecorded lectures by experts - distance learning

- 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

Local Classrooms - face to face

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

Virtual classroom

- Practical assignments
- Module assessments
- Question and discussion forums
- Feedback forms
## Contact session layout

<table>
<thead>
<tr>
<th>time</th>
<th>activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:20 CAT</td>
<td>Sign in to Adobe Connect</td>
</tr>
<tr>
<td>10:30 CAT</td>
<td>Introduction (in Adobe Connect) webcams activated!</td>
</tr>
<tr>
<td></td>
<td>• Meet the featured classroom</td>
</tr>
<tr>
<td>10:40 CAT</td>
<td>Watch lecture recordings (in classroom)</td>
</tr>
<tr>
<td>12:30 CAT</td>
<td>break</td>
</tr>
<tr>
<td>13:00 CAT</td>
<td>Work through practical assignment (trainer will be available during this</td>
</tr>
<tr>
<td></td>
<td>time to answer questions via Adobe Connect chat or Vula forums)</td>
</tr>
<tr>
<td>14:00 CAT</td>
<td>Ask the trainer</td>
</tr>
<tr>
<td></td>
<td>• Meet the trainer</td>
</tr>
<tr>
<td></td>
<td>• Practical session wrap up</td>
</tr>
<tr>
<td></td>
<td>• Q&amp;A</td>
</tr>
</tbody>
</table>
Adobe Connect

If you would like to test your connection or are having problems with Adobe connect, please visit: http://meeting.uct.ac.za/common/help/en/support/meeting_test.htm

Please note: I will not be present in the room at all times and will only be actively engaging with anyone signing on between 12 pm and 1 pm CAT. You will have access to the room until I no longer see anyone signing on (most likely till around 3 pm) in order to become familiar with the interface.

Tests to be performed:
1. Accessing the room
2. Audio feeds: Please test whether you are able to speak in the room and whether you are able to get audio feed from me (if present in the room) or anyone else who has signed on.
3. Testing video feed: Please check whether you get my video feed (if I am present in the room) and whether you are able to send a video feed into the room using your webcam as well.
4. Connectivity test successful, you may sign off.

Do not forget to log your test in the chat box using your name, the name of your classroom and indicate whether it was successful or not.
Vula Demo
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

Now watch the video labelled: Day 1 Part 5
Introduction Week
Day 1 Part 5 – Classroom
Biographies
Forming a community

• The success of the course will be 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
Classroom Biography

• To facilitate this we would like each classroom to write up a short biography about yourselves and your institute and take a photograph of your team
• The short biography should be uploaded to the Vula forums together with the photograph as an attachment
• Each classrooms will be able to view every classrooms biography and photograph
Team Biography

• We have provided instructions and a template for generating the biography and uploading to Vula here:
  ✓ INT_BT_2019 site -> Resources -> Introduction Week-> Introduction week Day 1 Part 5_template - via Vula.docx
  ✓ A single biography should be uploaded for each classroom – elect ONE PARTICIPANT to upload the biography and photograph to Vula on behalf of the classroom
Classroom Biography video - optional

If you would like to, you can create a VIDEO introducing your classroom (similar to ‘meet the core team’ video)

- We have provided instructions and a powerpoint template for generating the biography video here:
  - ✓ INT_BT_2019 site -> Resources -> Introduction Week Day 1_video Biography
Watch video labeled:
Day 1 Part 6
16S rRNA Microbiome Intermediate Bioinformatics Course: Int_BT_2019

Introduction week
Day 1 Part 6 - Feedback
Feedback

From both IBT staff and IBT participants

• Allows INT_BT team to improve the course
• Allows for self-reflection before and after each module - ‘On a scale from 0 to 5, how confident are you to...’
Feedback

This course is an introduction to the field of bioinformatics. It combines theoretical and practical sessions to allow participants to gain practical experience with important bioinformatic tools and resources.

If you would like to officially pass the course and obtain a letter of completion, you must:

- Attend all contact sessions (in cases where it is impossible to do so you must inform the TAs for your classroom).
- Submit 90% of practical assignments by the relevant hand-in dates (one practical assignment per contact session for Module 1-6, excluding consolidation sessions).
- Submit assessments by the relevant hand-in dates and obtain a minimum grade of 60% overall for the assessments (one assessment per Module).
That is all for today
See you next time!