Introduction to Methods in Computational Biology and Genomics

C. Ryan Campbell

Duke University

c.ryan.campbell@duke.edu

August 25, 2017

Overview

1. Course
   - Course Intro
   - Teaching Philosophy
2. In-Class Activity
3. Computing and Genomics
   - Computer Requirements
   - Genomics: Why We're Here

Today's Goals

Course Goals

Course Syllabus

Course Grade

Course Policies

Day-to-day Course

Project

Research Tools

Programming Languages

Teaching Philosophy

Clear Goals

Active Learning

Student Driven

In-Class Activity

1. Pair up *randomly*
2. Fill out this Google form
3. Make a slide in the Google Slideshow for your partner with their answers, including (at minimum):
    - Name
    - Picture
    - 'Three words' response
    - Two answers from ''Whimsy'
    - Feel free to expand (see my slide for reference)
4. Introduce partner to class

There are three important points:

1. A first one,

There are three important points:

1. A first one,
2. a second one with a bunch of subpoints,
    - first subpoint. (Only shown from second slide on!).

There are three important points:

1. A first one,
2. a second one with a bunch of subpoints,
   - first subpoint. (Only shown from second slide on!).
   - second subpoint added on third slide.

There are three important points:

1. A first one,
2. a second one with a bunch of subpoints,
   - first subpoint. (Only shown from second slide on!).
   - second subpoint added on third slide.
   - third subpoint added on fourth slide.

There are three important points:

1. A first one,
2. a second one with a bunch of subpoints,
   - first subpoint. (Only shown from second slide on!).
   - second subpoint added on third slide.
   - third subpoint added on fourth slide.
3. and a third one.

Computer Requirements

Software

R-Studio

github

Analysis Software

Cluster Computing

Computer Languages

Hand Raising Request

Genomics

Brief History of Sequencing

How Did We Get Here?

Last Generation Sequencing

Next Generation Sequencing

Sequencing Output

Beyond NGS

Course Motivations

Computational Need

Lack of Offerings

Cheap/Free Data

Personal Experience

The End