QIIME (+ Linux) Workshop 2016

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Day 1: Introduction to Linux

Date: July 8th, 2016, 9 am – 1 pm
Instructors: Jessica Kirkpatrick (HPCBio), Jenny Drnevich (HPCBio)
Assistant: Shoham Das
Location: 607 IGB

Class Materials:

- Presentation
- Linux cheat sheet
- Getting on a UNIX-based terminal
- Appendix
- Class Video

Additional Linux Resources:

- Beginner Linux - self-guided tutorials for extra practice
  - Tutorial from the book UNIX and Perl to the RESCUE!
    - Parts 1 and 2 cover UNIX
      - http://korlab.ucdavis.edu/Unix_and_Perl/current.html#part2
  - SIB tutorial
    - If it asks you to log in, just log in as a “guest user”
      - Click on “UNIX elearning module” at the bottom to get started
    - University of Surrey tutorial
      - http://www.ee.surrey.ac.uk/Teaching/Unix/
    - Ryan’s Tutorials
      - http://ryanstutorials.net/linuxtutorial/
- Linux Books
  - UNIX and Perl to the RESCUE! by Keith Bradnam & Ian Knor
  - Developing Bioinformatics Computer Skills by Cynthia Gibas & Per Jambeck
  - Linux Pocket Guide by Danial J. Barrett
  - Beginning Shell Scripting by Eric Foster-Johnson, John C. Welch, & Micah Anderson
  - Learning the bash Shell by Cameron Newham
  - bash Cookbook by Carl Albing, JP Vossen, & Cameron Newham
- Linux-related Software

Day 2: Introduction to QIIME & Preprocessing

Date: July 11th, 2016, 9 am – 1 pm
Instructors: Jessica Kirkpatrick (HPCBio), Chris Wright (CBC), Jenny Drnevich (HPCBio)
Assistant: Shoham Das
Location: 607 IGB

Class Materials:

- Slides:
  - Chris Wright’s presentation
  - Introduction to QIIME and pre-processing: presentation

Example dataset files:

- Condensed sequencing report
- FASTQC report for forward reads of archaea dataset

Additional Files

- Upstream analysis homework
- Class Video
- Detailed QIIME tutorial

Day 3: Basic QIIME Analyses

Date: July 13th, 2016, 9 am – 1 pm
Instructors: Jessica Kirkpatrick (HPCBio), Jenny Drnevich (HPCBio)
Assistant: Shoham Das
Location: 607 IGB

Class Materials:

- Slides:
  - Basic analyses in QIIME: presentation

Additional Files

- Full analyses homework
- Full analyses homework ANSWER KEY
• The following software allows remote access from a Windows computer to a Linux based terminal. Mac already has a UNIX-based terminal pre-installed. You can find it in Applications -> Utilities -> Terminal
  • MobaXterm: http://mobaxterm.mobatek.net/
  • PuTTY: http://www.putty.org/

• Biocluster Resources
  • Biocluster help page
  • Campus cluster help page
  • How to submit a cluster job
  • qsub script generator

• Class Video
• Detailed QIIME tutorial

Day 4: Statistical Analyses

Date: July 15th, 2016, 9 am – 1 pm
Instructors: Jenny Drnevich (HPCBio), Jessica Kirkpatrick (HPCBio)
Assistant: Shoham Das
Location: 607 IGB

Class Materials:

Slides:
  • Statistical Analyses in QIIME - updated

Additional Links
  • Class Video
  • QIIME 2.0 site; blog announcement
  • McMurdie and Holmes, 2014
  • Bioconductor workflow for full microbiome analyses