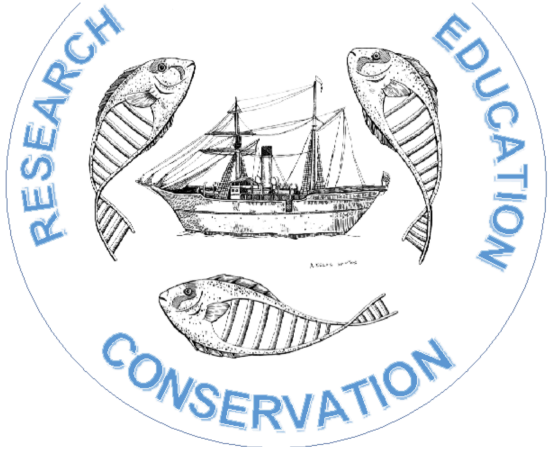
2022 Omic's Workshop

Educational and Outreach Component

README.md

Welcome to the 2022 PIRE Omics Workshop!

The Philippines PIRE Project



Dr. Eric Garcia
Postdoc Philippines PIRE Project

July 4-8th, 2022
Silliman University

2022 Omic's Workshop

GOALS

- ❑ To have all participants being able to process their own genomic data using the PPP Pipeline to estimate population history of species and analyze population genomic patterns across time and space

- ❑ To facilitate international collaboration

2022 Omic's Workshop

GOALS

- Lectures
  - DNA and Principles of Molecular Ecology

- Exercises
  - Sequence data filtering and quality control
  - Genome assembly
  - Inferring population history with PSMC
  - Isolating mtDNA and analyzing population structure
  - Organizing and illustrating data with R

2022 Omic's Workshop

GOALS

- Lectures
  - DNA and Principles of Molecular Ecology

- Exercises

M • Sequence data filtering and quality control
T • Genome assembly
W • Inferring population history with PSMC
Th • Isolating mtDNA and analyzing population structure
F • Organizing and illustrating data with R

Red light

When having difficulty with an exercise place the red sticky note on top of your monitor. An instructor will come to assist you.Remove the sticky note and follow the green light procedure

Put your name here

Green light

When an exercise is completed successfully place the green sticky note on top of your monitor. Remove it when the next exercise starts.

Put your name here

2022 Omic's Workshop

README

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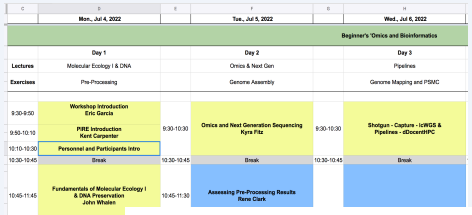
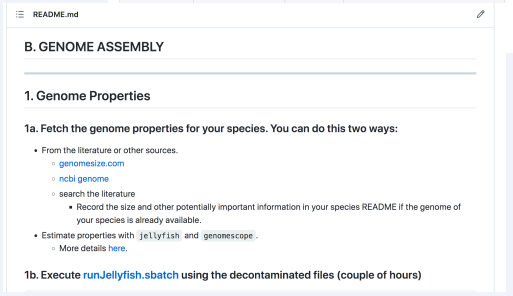
Schedule
People
Pre-workshop
Pipeline
R



	Mon., Jul 4, 2022	Tue., Jul 5, 2022	Wed., Jul 6, 2022
	Beginner's 'Omics and Bioinformatics		
	Day 1	Day 2	Day 3
Lectures	Molecular Ecology I & DNA	Omics & Next Gen	Pipelines
Exercises	Pre-Processing	Genome Assembly	Genome Mapping and PSMC
9:30-9:50	Workshop Introduction Eric Garcia		
9:50-10:10	PIRE Introduction Kent Carpenter	9:30-10:30 Omics and Next Generation Sequencing Kyra Fitz	9:30-10:30 Shotgun - Capture - lcWGS & Pipelines - dDocentHPC
10:10-10:30	Personnel and Participants Intro		
10:30-10:45	Break	10:30-10:45 Break	10:30-10:45 Break
10:45-11:45	Fundamentals of Molecular Ecology I & DNA Preservation John Whalen	10:45-11:30 Assessing Pre-Processing Results Rene Clark	
11:45-12:00	Here We Go! HPC and Git Setup Rene Clark		
12:00-12:30	Workshop Directory Se Rene Clark		

List of Instructors

Position	Name	Institution	Contact
Professor	Kent Carpenter	ODU	cbird@odu.edu
Professor	Chris Bird	TAMUCC	kcarpent@odu.edu
Postdoc	Eric Garcia	ODU	e1garcia@odu.edu
Postdoc	Brendan Reid	Rutgers	br450@sebs.rutgers.edu
PhD Student	Rene Clark	Rutgers	rdc129@scarletmail.rutgers.edu
PhD Student	Kyra Fitz	Rutgers	ksf63@dls.rutgers.edu
PhD Student	John Whalen	ODU	jwhal002@odu.edu
PhD Student	Jemelyn Baldisimo	ODU	jbald004@odu.edu
M.Sc Student	George Bonsall	ODU	gbons002@odu.edu



README.md

B. GENOME ASSEMBLY

1. Genome Properties

1a. Fetch the genome properties for your species. You can do this two ways:

- From the literature or other sources.
  - genomesize.com
  - ncbi genome
  - search the literature
    - Record the size and other potentially important information in your species README if the genome of your species is already available.
- Estimate properties with `jellyfish` and `genomescope`.
  - More details here.

1b. Execute runJellyfish.sbatch using the decontaminated files (couple of hours)