

A dramatic seascape with a large wave crashing against a rocky cliff under a stormy sky. The wave is a deep green color, and the sky is dark with some light breaking through the clouds. The cliff is on the left side of the frame.

Welcome!

Marine Genomics

Internship

Work on data analyses for kelp and urchin datasets

[California Conservation Genomics Project](#): project PI Rachael Bay

Current team: Serena Caplins (Postdoc), Vanessa Guerra (Postdoc), Rachael Bay (Associate Professor), Maddie Armstrong (PhD student), Josh Melendez (MS student CSULA)

+ 3 undergraduate students!

Part-time for 8 weeks = \$15/hour for 160 hours (\$2500).

Start Mid June – End of August

Participate in data analyses, figure generation, and statistical analyses, read scientific papers, and software documentation

Weekly team meetings

Internship Application:

Due May 4th

STAR WARS
MAY THE 4TH
BE WITH YOU



Interns will be selected based on a one-page essay response to the following questions:



What skills/experiences do you hope to gain in this internship?



What skills that you've developed through course work or work experience, do you hope to bring to this internship?



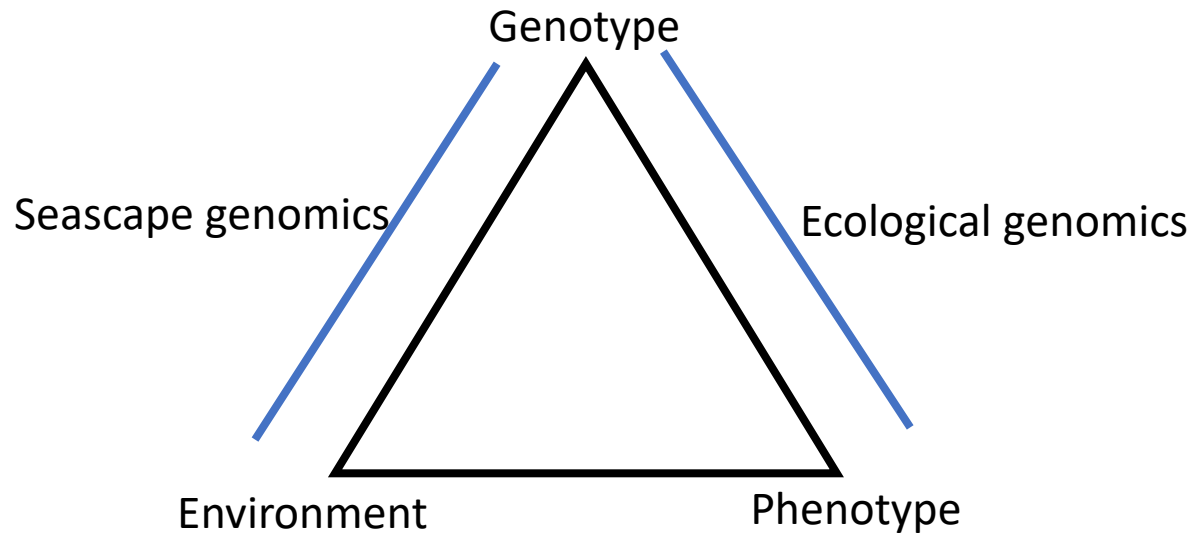
What's the best team you've ever been a part of and why? (Describe what makes a good team)



Application form posted on Canvas!

What is Marine Genomics?


Using genomic data to answer questions about the evolutionary biology of marine organisms.



MOLECULAR ECOLOGY

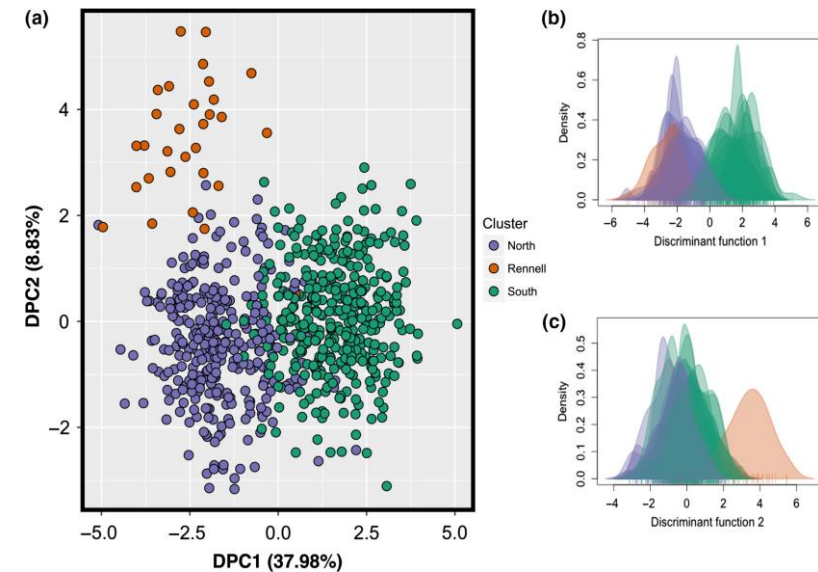
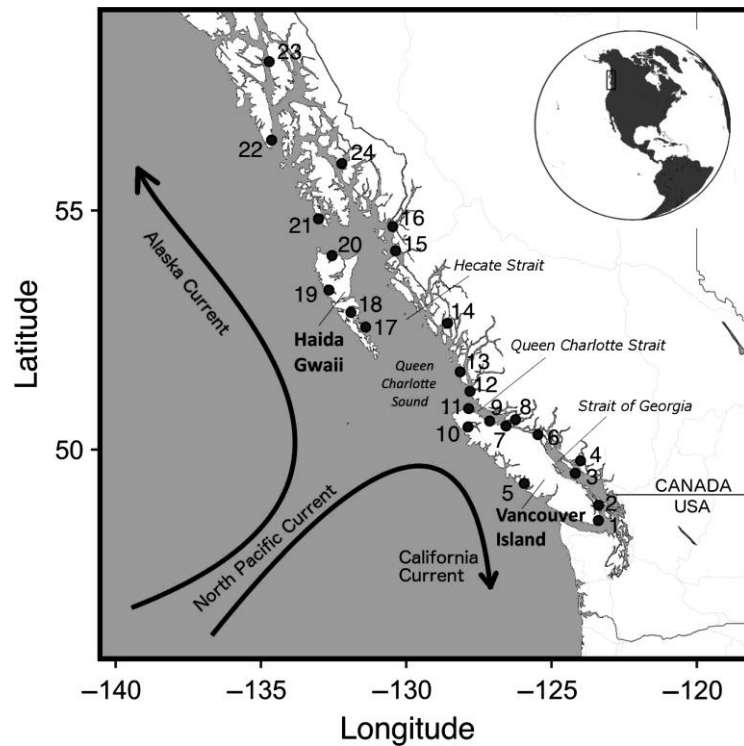
ORIGINAL ARTICLE | [Full Access](#)

Asymmetric oceanographic processes mediate connectivity and population genetic structure, as revealed by RADseq, in a highly dispersive marine invertebrate (*Parastichopus californicus*)

Amanda Xuereb , Laura Benestan, Éric Normandeau, Rémi M. Daigle, Janelle M. R. Curtis, Louis Bernatchez, Marie-Josée Fortin

First published: 14 April 2018 | <https://doi.org/10.1111/mec.14589> | Citations: 35

[UC-eLinks](#)



A Genome-Wide Association Study Identifies the Genomic Region Associated with Shell Color in Yesso Scallop, *Patinopecten yessoensis*

Liang Zhao¹ · Yangping Li¹ · Yajuan Li¹ · Jiachen Yu¹ · Huan Liao¹ · Shuyue Wang¹ · Jia Lv¹ · Jun Liang² · Xiaoting Huang¹ · Zhenmin Bao^{1,3}

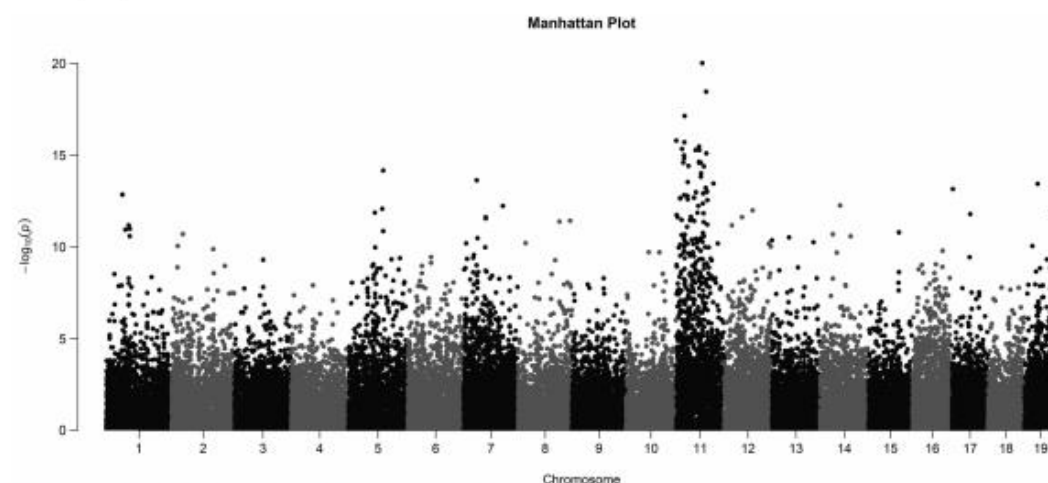


Fig. 2 Manhattan plot of $-\log_{10}(P)$ value for genome-wide association study

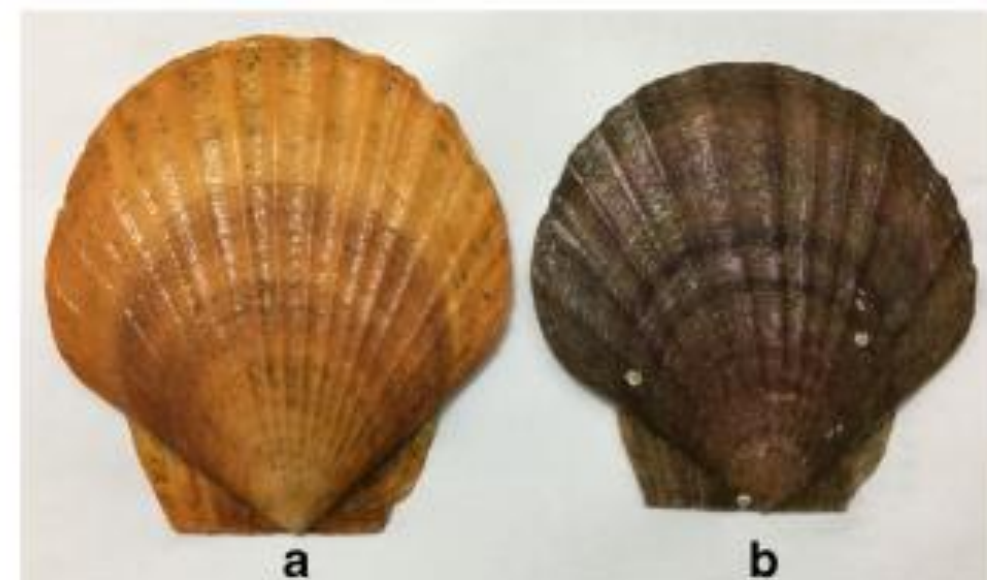


Fig. 1 Reddish-orange shell variant (a) and brown shell variant (b) of Yesso scallop, *Patinopecten yessoensis*

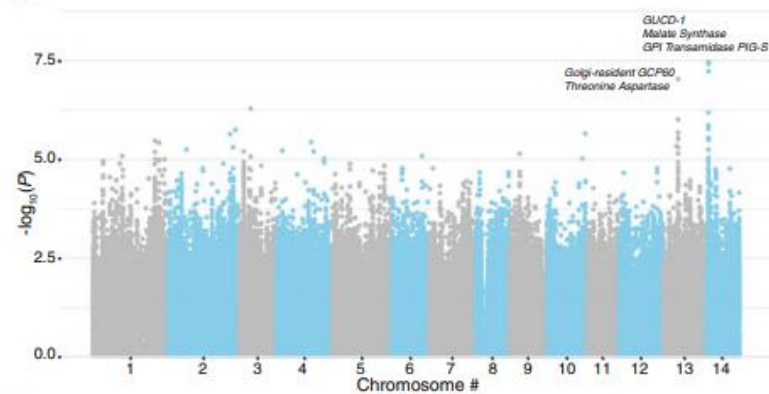
RESEARCH ARTICLE SUMMARY

CORAL GENOMICS

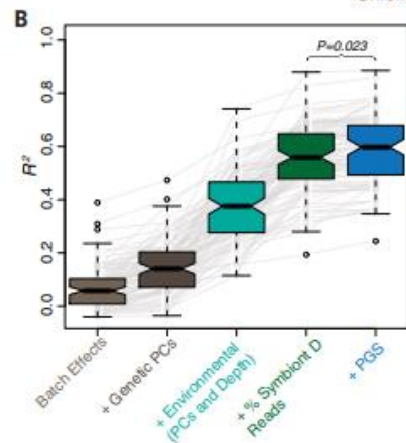
Population genetics of the coral *Acropora millepora*: Toward genomic prediction of bleaching

Zachary L. Fuller*, Veronique J. L. Mocellin, Luke A. Morris, Neal Cantin, Jihanne Shepherd, Luke Sarre, Julie Peng, Yi Liao, Joseph Pickrell, Peter Andolfatto, Mikhail Matz†, Line K. Bay*†, Molly Przeworski*†

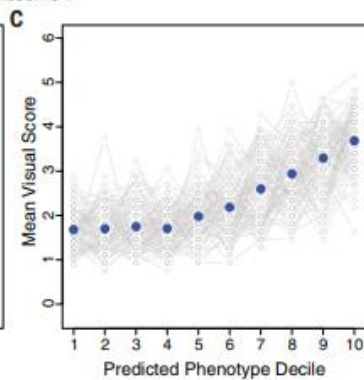
A



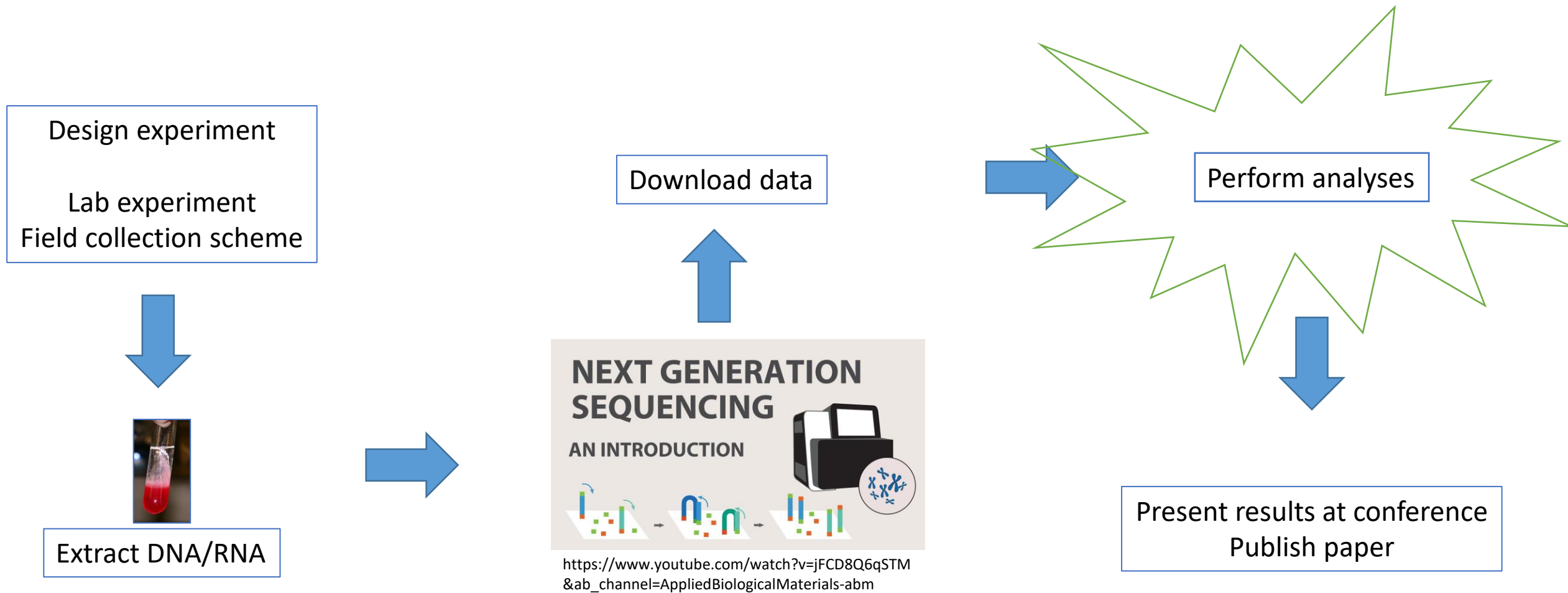
B



C



How do we do marine genomics?



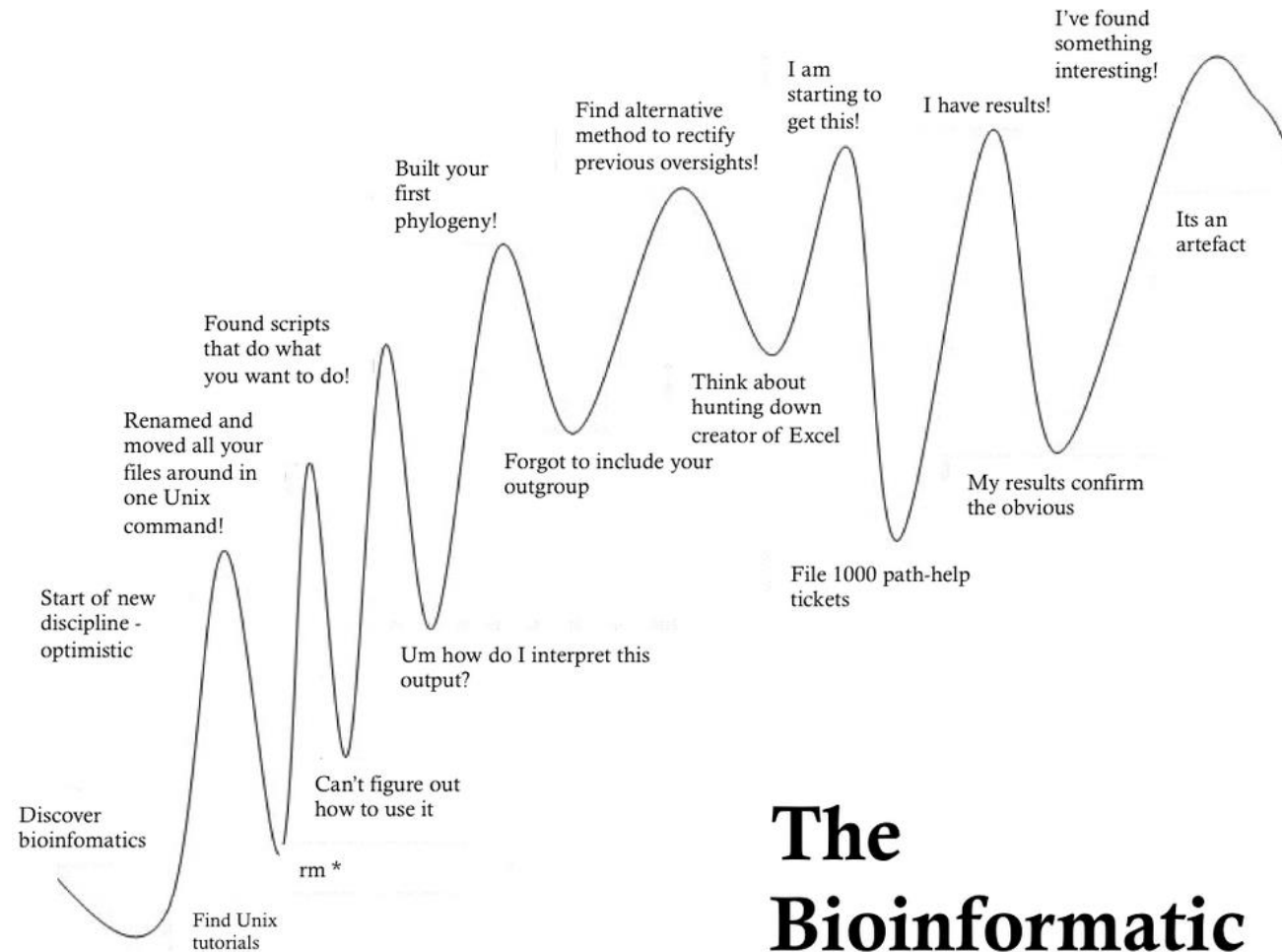
We use bioinformatics to understand these questions

We'll cover two main areas

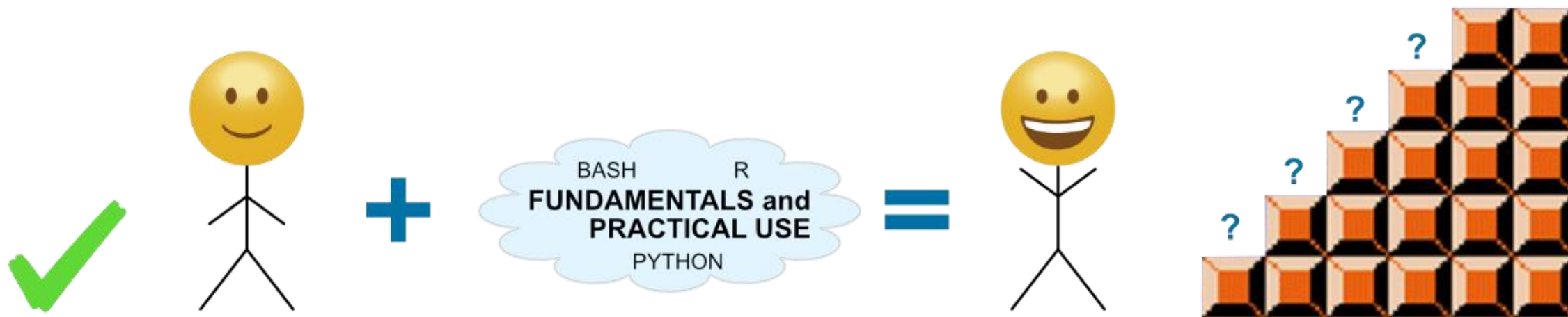
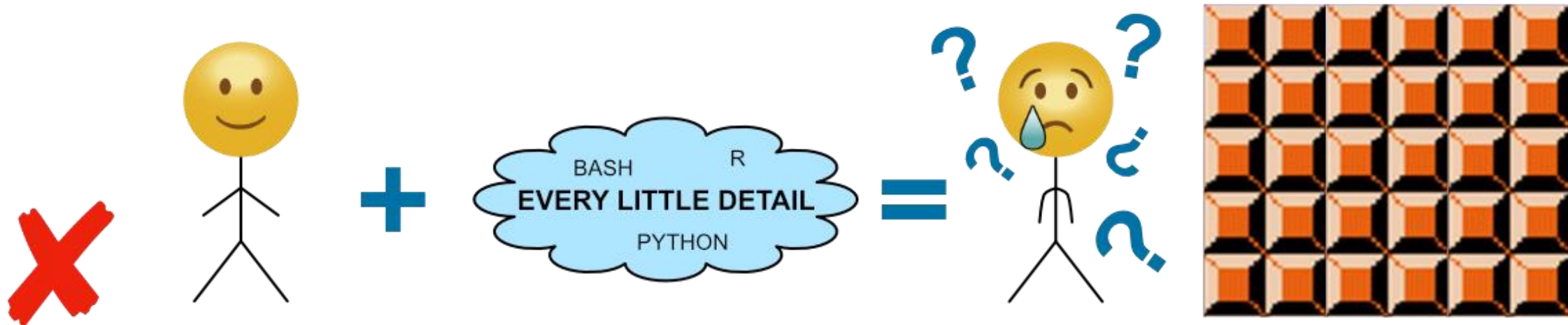
- The shell or Bash/UNIX
- R

Many of these analyses are very computationally intensive

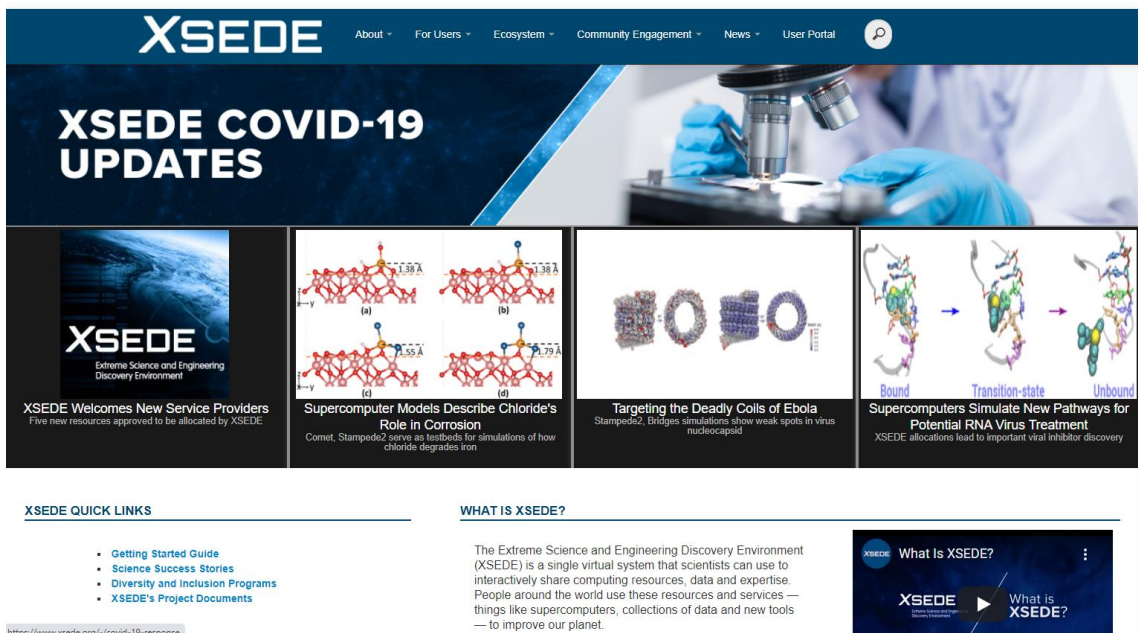
We will use a cloud computing resource called Jetstream



The Bioinformatic learning curve



Jetstream via xsede



The XSEDE website homepage features a dark blue header with the XSEDE logo and navigation links: About, For Users, Ecosystem, Community Engagement, News, and User Portal. A large banner for 'XSEDE COVID-19 UPDATES' is prominently displayed. Below the banner, there are four featured articles: 'XSEDE Welcomes New Service Providers', 'Supercomputer Models Describe Chloride's Role in Corrosion', 'Targeting the Deadly Coils of Ebola', and 'Supercomputers Simulate New Pathways for Potential RNA Virus Treatment'. The footer includes 'XSEDE QUICK LINKS' and 'WHAT IS XSEDE?' sections.

XSEDE
Extreme Science and Engineering
Discovery Environment

XSEDE COVID-19 UPDATES

XSEDE Welcomes New Service Providers
Five new resources approved to be allocated by XSEDE.

Supercomputer Models Describe Chloride's Role in Corrosion
Comet, Stampede2 serve as testbeds for simulations of how chloride degrades iron.

Targeting the Deadly Coils of Ebola
Stampede2, Bridges simulations show weak spots in virus nucleocapsid.

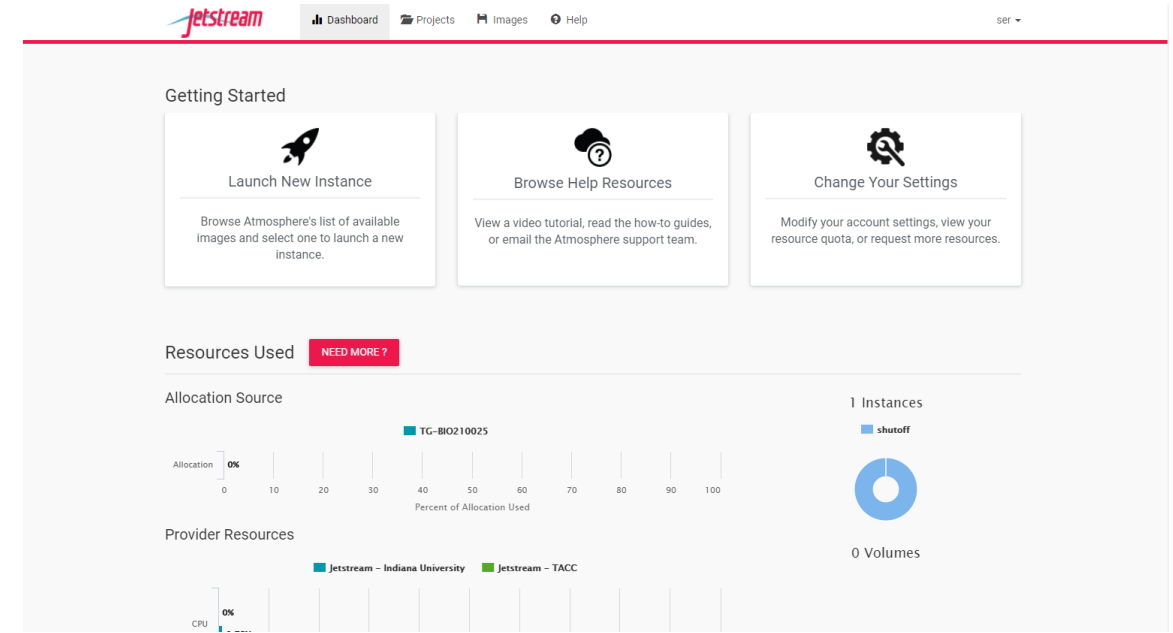
Supercomputers Simulate New Pathways for Potential RNA Virus Treatment
XSEDE allocations lead to important viral inhibitor discovery.

XSEDE QUICK LINKS

- Getting Started Guide
- Science Success Stories
- Diversity and Inclusion Programs
- XSEDE's Project Documents

WHAT IS XSEDE?

The Extreme Science and Engineering Discovery Environment (XSEDE) is a single virtual system that scientists can use to interactively share computing resources, data and expertise. People around the world use these resources and services — things like supercomputers, collections of data and new tools — to improve our planet.



The Jetstream dashboard features a red header with the Jetstream logo and navigation links: Dashboard, Projects, Images, and Help. The main content area is divided into three sections: 'Getting Started' with 'Launch New Instance', 'Browse Help Resources', and 'Change Your Settings'; 'Resources Used' with a 'NEED MORE?' button; and 'Provider Resources' with a table of resources. A 'shutoff' button is also visible.

Jetstream

Dashboard Projects Images Help

Getting Started

- Launch New Instance**
Browse Atmosphere's list of available images and select one to launch a new instance.
- Browse Help Resources**
View a video tutorial, read the how-to guides, or email the Atmosphere support team.
- Change Your Settings**
Modify your account settings, view your resource quota, or request more resources.

Resources Used **NEED MORE?**

Allocation Source

Allocation 0% 10 20 30 40 50 60 70 80 90 100

Percent of Allocation Used

Provider Resources

Jetstream - Indiana University Jetstream - TACC

CPU 0% 10 20 30 40 50 60 70 80 90 100

1 Instances

0 Volumes

Why learn bioinformatics?

Gain many transferable skills!

- Data science
- Personalized medicine
- NGO agency scientist

Undergraduate degree

- Grad school
 - Postdoc
 - Professor
 - Research scientist in industry

freenome

Multomics PREEMPT CRC™ Study About Careers News Science Blog

f t in



Spot the pattern,
**treat
the cancer.**

At Freenome, we're connecting people with next-generation blood tests for early cancer detection powered by our multomics platform.

