

workshop on comparative genomics

north america
2011



objectives of this presentation

- provide some information about the setting and logistics
- provide some background information about the Workshop
- help you establish an appropriate set of expectations

frequently asked questions

- Where is the restroom?
- Why do we start at 9:00 AM? We should start earlier (e.g., 7:00 AM, 7:30 AM, 8:00 AM).
- Coffee?
 - Coffee and tea will be delivered every morning and afternoon other than Saturday
- Where do I eat?
 - Ram's Horn Dining Hall
- Where is the pub?
- Where is the computer laboratory?
 - Lectures are in Behavioral Sciences 131
 - Labs are in Behavioral Sciences 107
- How long will the materials on the web site be available?

who

you

- proportions (n = 67)
 - 0.28 postdoctoral scholars
 - 0.33 graduate students
 - 0.27 faculty/principal investigators
 - 0.12 other
 - 46% Female / 54% Male
- broad international representation (n=20)
 - Argentina, Australia, Canada, Chile, China, Colombia, Ecuador, France, Germany, Great Britain, India, Italy, Malaysia, Mexico, New Zealand, Puerto Rico, South Korea, Spain, Switzerland, United States

instructors and staff



Matt Conte



Henk den Bakker



Gerardo Nava



Daniel Ayres



Adam Bazinet

faculty



where

important considerations

- relatively isolated
- idyllic
- conveniently located
- appropriate infrastructure
- Fort Collins, Colorado State University

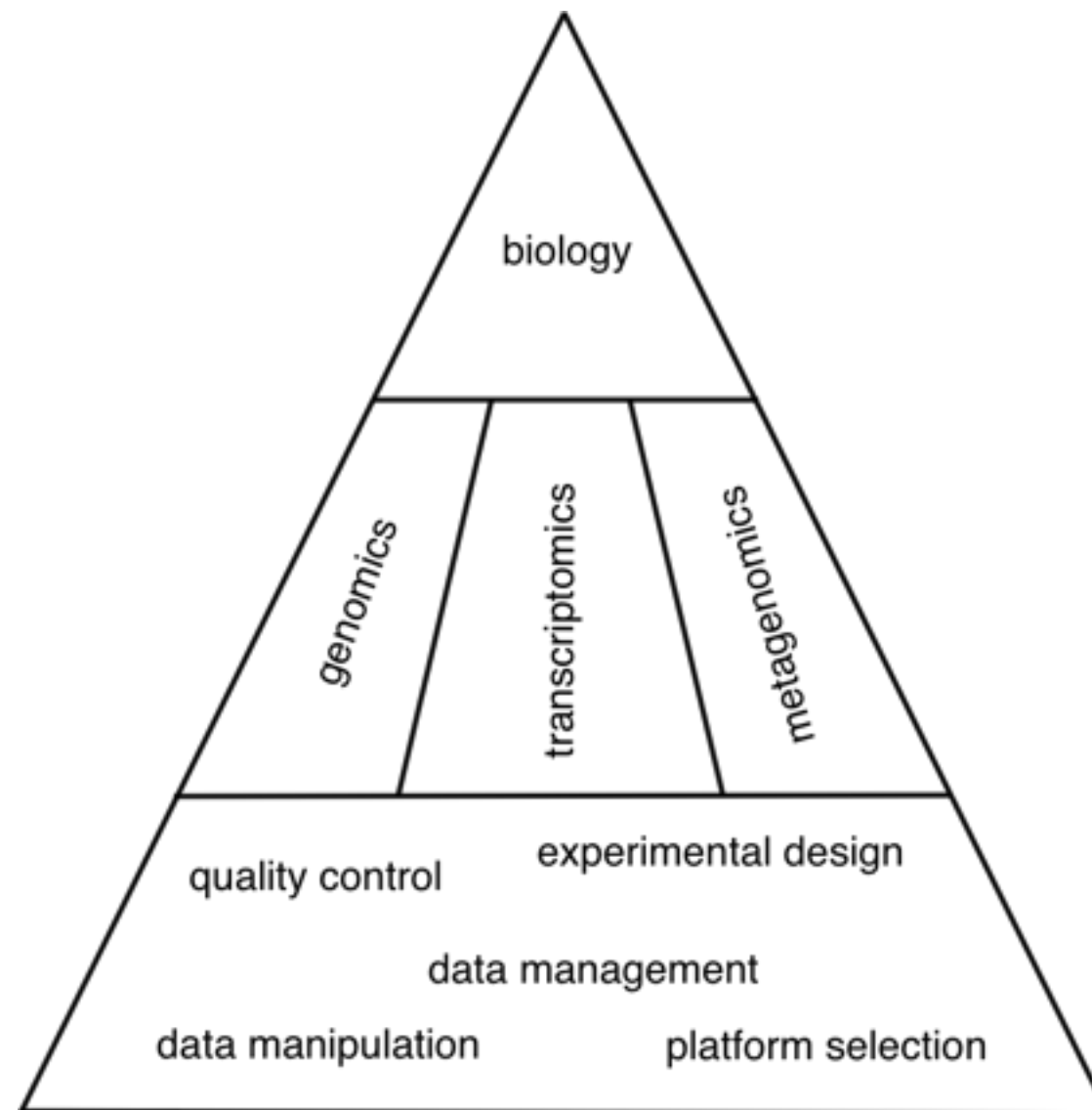
The map shows the University of Idaho campus with various buildings and streets. Key buildings include the McGraw Athletic Center, Moby Arena, Academic Training Center, Intramural Gym, Indoor Practice Facility, Student Recreation Center, Student Recreation Center Construction Zone, Vietnam Memorial Bridge, Lagoon, Arthur Ditch, Weather Station, Weber, Engineering, Statistics, Isotope Drive, Wadsworth, NRRL, Forestry, Natural Resources, Computer Science, Glover, Lory Student Center, Morgan Library, Clark A, Clark B, Clark C, Animal Sciences, Behavioral Sciences, Education, Eddy Hall, Braiden Hall, Aylesworth Hall, Newsom Hall, Aspen Hall, Academic Village, Edwards Hall, Ingersoll Hall, Summit Hall, Visual Arts, Chemistry, Yates Hall, Microbiology, Anatomy/Zoology, Physiology, Environmental Health, Gifford, Molecular and Radiological Biosciences, and Holley Plant Environmental Research Center. Streets shown include Plum Street/North Drive, Elizabeth Street, University Avenue, South Drive, Westward Drive, Shields Street, Springfield Drive, Pitkin Street, Meridian Avenue, and Lake Street. A legend indicates that double lines with arrows represent vehicle thoroughfares and hatched areas represent pay-by-space parking. A north arrow and a scale bar (0 to 100 feet) are also present. Several buildings are highlighted with red boxes: the Lory Student Center, Ingersoll Hall, Academic Village, and Behavioral Sciences building.

what

basis

- Workshop on Molecular Evolution
 - focused on molecular phylogenetics and population genetics
 - Woods Hole, Marine Biological Laboratory
 - Centers for Disease Control and Prevention
 - Smithsonian Institution
 - Cesky Krumlov, Czech Republic
 - ▶ First Workshop on Comparative Genomics - January 2011
- Lessons
 - immersive and intensive
 - workshop not a symposium
 - isolated, idyllic, easy access, infrastructure

design



- broad range of biological disciplines and levels of experience

schedule

- Workshop website

breaks

- approximately midway through each period there will be a break of 15-30 minutes, possibly two
- morning and afternoon breaks will be in the Behavioral Sciences Building
 - No evening coffee service
- evening breaks will be wherever you want to go

need

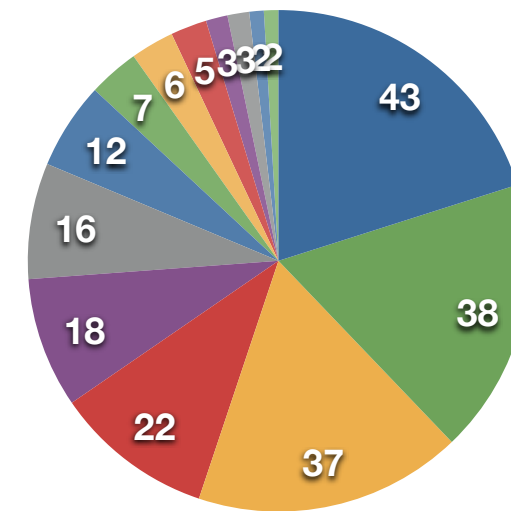
Instrument	Run Time	Millions of reads/run	Reagent cost per run	Reagent cost/ MB	Data file Sizes (GB)
3730xl capillary	2 hours	0.000096	~\$100	~\$1500	0.03
Illumina HiSeq 2000	8 days	1000	~\$20,000	\$0.10	1200



bioinformatic landscape



As of 9 July 2011 SEQwiki contains pages for 440 (373 in January) bioinformatics applications related to genomic analysis!



- | | |
|-----------------------------|-----------------------|
| ● RNA-Seq | ● Genomics |
| ● SNP discovery | ● De-novo assembly |
| ● ChIP-Seq | ● Structural variants |
| ● Metagenomics | ● Epigenomics |
| ● Copy number estimation | ● InDel discovery |
| ● DNA Methylation | ● Alignment |
| ● Whole Genome Resequencing | ● Mapping |



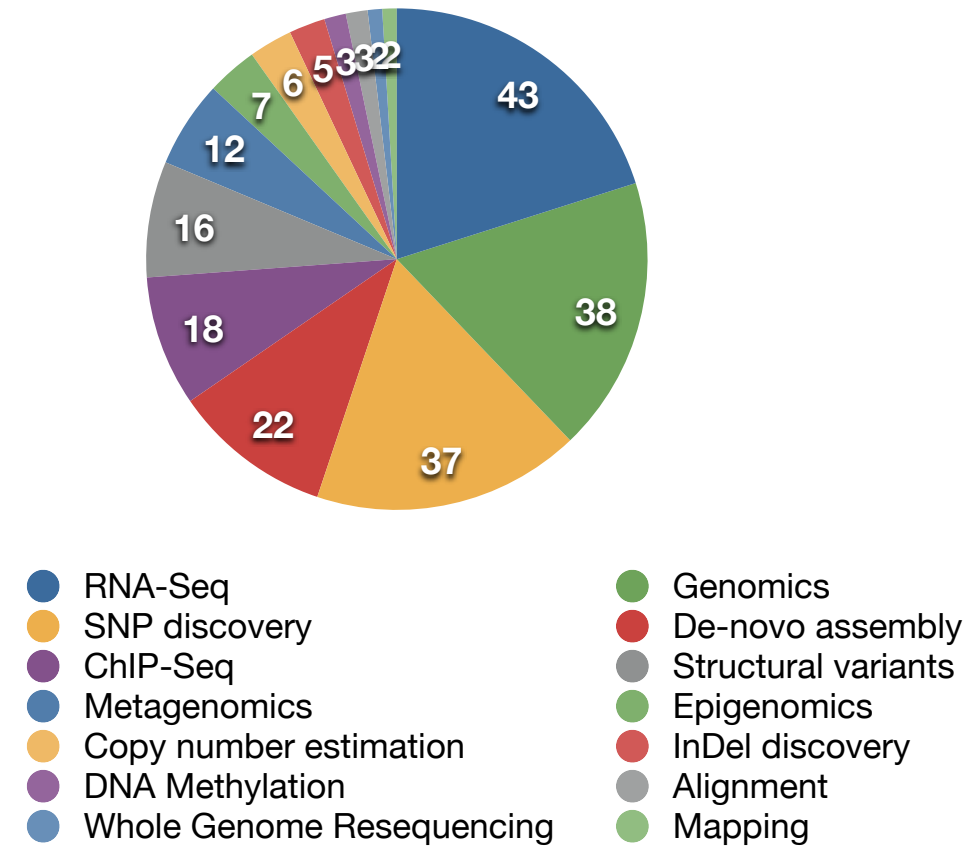
current challenge

454
SOLiD
Illumina
Ion Torrent
Pacific Biosciences

+



+



expectations

expectations

- exhaustion
 - please try to relax and drink responsibly
- computing environment
 - highly specialized customized Linux distribution
 - multiple solutions for multiple OS's
 - you may not get everything installed or finish every exercise during the allotted session
- best practices
 - work in pairs or small groups
 - open labs
 - all material is available after you leave

discussion opportunities

- the Workshop provides extensive opportunities for discussions
 - with faculty
 - with instructors
 - with other participants
- these opportunities include
 - lecture and lab breaks
 - meals
 - at the cafe and bar after lab
- you are well advised to take advantage of these opportunities
- faculty arrival and departure dates are on the web site

feedback

- please provide feedback
 - topics covered
 - constructive. how to improve in future years
 - this is your Workshop!
- end of Workshop survey
- Last minute addition
 - Wireless internet access forms

thanks



Adam Bazinet



Gerardo Nava



Matt Conte



Henk den Bakker



Daniel Ayres



Kendra Nighingale



Michael Cummings