



Colorado State University, June 3-9, 2018

Registration (5:30 – 6:30 PM) Room 304-306 Lory Center

June 3, 2018

Welcome and Opening Reception (6:30-9:30 PM)

June 3, 2018

Longs Peak Room, Lory Center

6:30-6:45	Welcome and Opening Remarks Jill Pecon Slattery and Sue Vandewoude
6:45-7:30	10 Attendee Presentations Attendees Sue as MC
7:30-8:00ish	Introduction of the ‘Best Practices’ workflow group exercise. Bob Fitak
8:00-9:30	Refreshments and Social Time

Day 1: Command Line, NGS Data Overview, Genome Mining

June 4, 2018

Lory Center Room 304-306

7:00 – 8:00	Breakfast	Rams Horn Dining Center
8:15-8:25	Step 1: What are my NGS tools for wildlife disease research? Assignment: Workflow Projects	
	Mark Stenglein and Bob Fitak	
8:25-8:35	Introduction to computers	
	Joe Strecker	
8:35-9:30	Intro to genomics and NGS	
	Mark Stenglein	
9:30-10:00	CSU Flash Talk Christie Mayo	
10:00-10:20	Coffee Break and Meet Invited Speaker	
10:20-12:15	Command Line and BLAST	
	Bob Fitak and Mark Stenglein	
12:15-1:15	Lunch Provided Onsite	
1:15-2:15	10 Attendee Presentations	
	Sue as MC	
2:15 -3:15	BLAST exercises	
	Bob Fitak and Mark Stenglein	
3:15-3:35	Coffee Break	
3:35-5:00	Exercises in Hypothesis Driven Genome Mining of Databases: What do I want to know? Data quality control (lecture; Bob) and beginning of downloading/data processing exercise	
	Mark Stenglein and Bob Fitak	

5:00-7:00	FREE TIME AND DINNER	Rams Horn Dining Center
7:30-8:30	Plenary Speaker Tracey Goldstein University of California-Davis	Longs Peak Room
8:30-9:30	Social Hour with Invited Speaker	

Day 2: Genome Assembly, Whole Genome Alignments, Metagenomics

June 5, 2018

Lory Center Room 304-306

7:00 – 8:00	Breakfast	Rams Horn Dining Center
8:15-8:25	Step 2: Best Practices for Generating Quality Genomes of Host and Pathogen	
8:25-9:30	Mapping to Reference Genome: Good, Bad Ugly Mark Stenglein and Bob Fitak	
9:30-10:00	Jeff Foster White Nose and bats	
10:00-10:20	Coffee Break and Meet Invited Speaker	
10:20-11:15	Mapping Exercises Bob Fitak and Mark Stenglein	
11:15-12:15	Genome Assembly lecture Mark Stenglein	
12:15-1:15	Lunch Provided Onsite	
1:15-3:15	Genome assembly exercises Mark Stenglein and Bob Fitak	
3:15-3:35	Coffee Break	
3:35-4:35	Genome assembly exercises continued and introduction to metagenomics and disease lecture Mark Stenglein and Bob Fitak	
4:35-5:00	Thought Exercise and Best Practices Session #1) Jill, Bob, Chris, Mark will be on hand to help as participants work on their scenario	

5:00-7:00	FREE TIME AND DINNER	Rams Horn Dining Center
7:30-8:30	Plenary Speaker Jeff Foster Northern Arizona University	Longs Peak Room
8:30-9:30	Social Hour with Invited Speaker	

Day 3: Multiple Sequence Alignments and Phylogenomics

June 6, 2018

Lory Center Room 304-306

7:00 – 8:00	Breakfast	Rams Horn Dining Center
8:15-8:25	Step 3: Comparing Differences Within and Between Genomes Jill Pecon Slattery	
8:25-9:00	Introduction to Multiple Sequence Alignments of Targeted & Whole Genomes Jill Pecon Slattery	
9:00-9:30	Alignment Computer Lab: Part 1 Nectin4, Aliview, Seaview, mafft, Muscle, clustalomega Jill Pecon Slattery and Justin Lee	
9:30-10:00	CSU Flash Talk Rebekah Kading	
10:00-10:20	Coffee Break and Meet Invited Speaker	
10:20-10:50	Alignment computer lab: Part 2 Nectin4, Aliview, seaview, mafft, muscle, clustalomega, PRANK Jill Pecon Slattery and Justin Lee	
10:50-11:55	Phylogenomic Trees: Models, Algorithms, Accuracy, Robustness, Measures of Support and Interpretation Jill Pecon Slattery	
11:55-12:15	Bayesian Methods Overview Bob Fitek	
12:15-1:15	Lunch Provided Onsite	
1:15-3:15	Phylogenomic Reconstruction Lab: jModeltest PAUP, MEGA, ML ME MP Jill Pecon Slattery*, Justin Lee	

3:15-3:25	Shortened Coffee Break	
3:25-3:50	Phylogenomic Reconstruction Lab: MrBayes Justin Lee*	
3:50-5:00	Field Trip to CSU Veterinary Hospital	
5:30-7:00	FREE TIME AND DINNER	Rams Horn Dining Center
7:30-8:30	Optional computer time with Instructors	

Day 4: Population Genomics

June 7, 2018

Lory Center Room 304-306

7:00 – 8:00	Breakfast	Rams Horn Dining Center
8:15-8:25	Step 4: Applying my genomic tools across populations within host & pathogen Jill Pecon Slattery	
8:25-9:30	Population Genomics 101 Chris Funk	
9:30-10:00	CSU Flash Talk Sue VandeWoude	
10:00-10:20	Coffee Break and Meet Invited Speaker	
10:20-11:00	Population Genomics 101 (cont) Chris Funk	
11:00-11:30	Host Population Genomics in Disease: Landscape Genomics Daryl Trumbo	
11:40-12:15	Computer Lab: Population Genomics Chris Funk & Daryl Trumbo	
12:15-1:15	Lunch Provided Onsite	
1:15-3:15	Computer Lab: Population Genomics Chris Funk & Daryl Trumbo	
3:15-3:35	Coffee Break	
3:35-4:00	Computer Lab: Population Genomics Chris Funk & Daryl Trumbo	
4:00-5:30	Trip to NGS Sequencing Center	
5:30-7:00	FREE TIME AND DINNER	Rams Horn Dining Center

7:30-8:30

Optional Computer Time with Instructor

Day 5: Clocks, Signals of Selection and Adaptation, Variant Function

June 8, 2017

Lory Center Room 304-306

7:00 – 8:00	Breakfast	Rams Horn Dining Center
8:15-8:25	Step 5: Functional Signals of Host-Pathogen Interactions from Population & Comparative Genomics	
8:35-9:30	Intra-Host Pools Pathogen Mark Stenglein	
9:30-10:00	CSU Flash Talk Greg Ebel	
10:00-10:20	Coffee Break and Meet Invited Speaker	
10:20-10:40	Molecular Clocks, Gene Trees, Species Trees, Bayesian (host & pathogen) Jill Pecon Slattery	
10:40-11:15	Variants, Selection, Adaptation, Fitness, Disease (host & pathogen) Jill Pecon Slattery	
11:15-11:45	Thought Exercise and Best Practices Session #2) Jill, Bob, Chris, Mark will be on hand to help as participants work on their scenario	
11:45-12:15	Computer Lab: Host gene alignment, phylogeny, variant identification Jill Pecon Slattery	
12:15-1:15	Lunch Provided Onsite	
1:15-2:45	PAML Computer Lab (host and/or pathogen) Jill Pecon Slattery* and Justin lee	
2:45-3:15	BEAST and Associated Software Overview Justin Lee*	

3:15-3:35	Coffee Break
3:35-5:00	BEAST Lab (Host and/or Pathogen) Justin Lee*
6:00-?	Party Downtown Fort Collins

DAY 6: Putting it all together: your workflow presentations

June 9, 2017

Lory Rm 304-306

7:00-8:15	Breakfast	Rams Horn Dining
8:15-8:20	Step 6: Our Workflow & GDW2018 Publication Jill, Bob, Sue, Chris, Mark	
8:20-9:00	Scenario Workflow #1: Group 1	
9:00-9:40	Scenario Workflow #2: Group 2	
9:40-10:00	Coffee Break	
10:00-10:40	Scenario Workflow #3: Group 3	
10:40-11:20	Scenario Workflow #4: Group 4	
11:20-11:40	Concluding Remarks & Farewells All instructors & participants	