Learning Objectives	Participants will be able to: • Characterize and investigate mycobacteriophage genomes. This includes the details of gene calling evaluation, functional assignments, and preparing a final product of a submission file that meets QC requirements. This year, we plan to focus on further analyses and experimentation. • Install and use the software for annotation/analyses of mycobacteriophages. The software includes DNA Master, Phamerator, and other web-based tools. • Identify the basic concepts that underpin the bioinformatics of phage biology that is relevant to their students.

Pre-req	Participants will bring a computer with all software installed and tested. See computer requirements and software installation information at http://www.hhmi.org/seawiki/display/WIKINAV/Consed+and+Phamerator+Virtual+Machine+Installation

	Time	Location	Topic
**Monday	December 8**	2:00-4:00p	*Conference Center*	**Registration** *(Guests may get lunch in the Dining Room between 11:30a-1:30p by showing their registration badge to the cashier)*
	4:00	*Small Auditorium*	**Welcome: Via video from Graham Hatfull**
	4:30	*Small Auditorium*	**Workshop Overview**
	5:30	*Dining Room*	*Dinner*
	6:45	*Small Auditorium*	**Genome Overview and Loading a Genome***
	7:30	*Small Auditorium*	**BLASTing the Genome***
		Pilot	**Social**

	Time	Location	Topic
**Tuesday	December 9**	7:15a	*Dining Room*	*Breakfast*
	8:00	*Small Auditorium*	**Auto-Annotation & Gene Calling Guidelines***
	9:00	*Small Auditorium*	**Add, Delete, and Modify a Gene***
	10:00	*Outside Sm. Aud.*	*Break*
	10:15	*Small Auditorium*	**Calling the Genes***
	11:00	*Small Auditorium*	**Choose Start Tools and Considerations***
	12:30p	*Dining Room*	*Lunch*
	1:15	*Small Auditorium*	**Informal Recap***
	2:00	*D124&D125*	**Group Exercise: Annotation and Analysis of Genome**
	3:00	*Great Hall*	*Break*
	3:15	*D124&125*	**Group Exercise: Annotation and Analysis of Genome (continued)**
	5:30	*Dining Room*	*Dinner*
	6:45	*Main Auditorium*	**A Global Look at Genomes***
	7:00	*D124&125*	**Group Exercise: Annotation and Analysis of Genome (continued)**
		Pilot	**Social**

	Time	Location	Topic
**Wednesday	December 10**	7:15a	*Dining Room*	*Breakfast*
	8:00	*Small Auditorium*	**Assigning Functions***
	9:00	*D124&125*	**Group Exercise: Assigning Functions**
	10:15	*Outside Sm. Aud.*	*Break*
	10:30	*Small Auditorium* *D124&125*	**Merge I*** **Group Exercise: Finding consensus in the merged data**
	12:30p	*Dining Room*	*Lunch*
	1:15	*Small Auditorium* *D124&125*	**Merge II*** **Group Exercise: Finding consensus in the merged data**
	3:00	*Outside Sm. Aud.*	**File posted**	*Break*
	3:15	*Small Auditorium*	**Examining Merged Data*** **Assignment: Construct a List of Discrepancies**
	5:30	*Dining Room*	*Dinner*
	6:45	*Small Auditorium*	**Phamerator and Exercise***
		Pilot	**Social**

	Time	Location	Topic
**Thursday	December 11**	7:15a	*Dining Room*	*Breakfast*
	8:00	*Small Auditorium*	**Inside the Black Box: Assembling and Finishing***
	9:00	*Small Auditorium*	**Resolving Discrepancies in the Merged Data: Several case studies***
	10:15	*Great Hall*	*Break*
	10:30	*D124&125*	**Group Exercise: Resolving Discrepancies**
	12:30p	*Dining Room*	*Lunch*
	1:15	*Large Auditorium*	**Final Overview of the Genome using Comparative Genomics***
	2:00	*D124&125*	**Group Exercise: Comparative Genomics**
	3:00	*Outside Sm. Aud.*	*Break*
	3:15	*Small Auditorium*	**Post Annotation Analyses & Experiments***
	5:30	*Dining Room*	*Dinner*
	6:45	*Small Auditorium*	**Graham Hatfull – TBA**
	8:00	*The Pilot*	**Informal discussions at the Pilot**

	Time	Location	Topic
**Friday	December 12**	7-8:00a	*Conference Center*	**Room Checkout** *(Participants may store their luggage in the Conference Center)*
	7:15	*Dining Room*	*Breakfast*
	8:00	*Small Auditorium*	**Ask Graham!***
	9:00	*Small Auditorium*	**Panel: Examples of Successful In Silico Implementation***
	10:30	*Outside Sm. Aud.*	*Break*
	10:45	*Small Auditorium*	**Final file formatting requirements and submission for QC** **Submit to GenBank**
	11:45	*Small Auditorium*	**Closing Remarks and Announcements**
	12:00p	*Small Auditorium*	**Adjournment |** *Bagged Lunch (Pick up at Conference Center)*

*Session will be streamed Eastern Standard Time