

Learning Objectives	<p>Participants will be able to:</p> <ul style="list-style-type: none"> • Characterize and investigate phage genomes, including the details of gene calling, functional assignments, and preparing a final product of a submission file that meets QC requirements. • Install and use the software for annotation/analyses of phages. The software includes DNA Master, Phamerator, and other web-based tools. • Identify basic phage biology concepts that underlie the bioinformatic investigations. • Devise a systematic plan for implementation of phage genomics in their classroom.
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Pre-req	Participants will bring a computer with all software installed and tested. See computer requirements and software installation information at http://seaphages.org/faculty/information/#bioinformatics .
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	Time	Location	Topic
Monday, December 5	2:00-4:00p	<i>Conference Center</i>	Registration
	4:00	<i>D124&D125</i>	Welcome and Introductions
	4:30	<i>D124&D125</i>	Central Dogma Review
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>D124&D125</i>	Introduction to Genome Annotation* & Getting Started
	8:00	<i>Great Hall</i>	Social

	Time	Location	Topic
Tuesday, December 6	7:15a	<i>Dining Room</i>	<i>Breakfast</i>
	8:00	<i>D124&D125</i>	Draft Functional Annotation*
	8:15	<i>D124&D125</i>	Assigning Functions from Phamerator/PhagesDB
	9:00	<i>D124&D125</i>	Guiding Principles* Calling the Genes*
	10:00	<i>Great Hall</i>	<i>Break</i>
	10:15	<i>D124&D125</i>	Calling the Genes*
	11:30	<i>D124&D125</i>	Group Exercise: Initial Gene Calling
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>D124&D125</i>	Group Exercise: Initial Gene Calling
	2:30	<i>D124&D125</i>	Debrief: Initial Gene Calling
	3:00	<i>Great Hall</i>	<i>Break</i>
	3:15	<i>D124&D125</i>	Group Exercise: More Gene Calling
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>D124&D125</i>	Group Exercise: More Gene Calling
7:45	<i>Great Hall</i>	Social	

Wednesday, December 7	Time	Location	Topic
	7:15a	Dining Room	Breakfast
	8:00	D124&D125	Debrief: Gene Calls
	8:30	D124&D125	Assigning Functions*
	9:30	D124&D125	Group Exercise: Assigning Functions
	10:15	Great Hall	Break
	10:30	D124&D125	Group Exercise: Assigning Functions (continued)
	11:00	D124&D125	Debrief: Assigning Functions
	11:30	D124&D125	Group Exercise: Formatting Concerns
	12:30p	Dining Room	Lunch
	1:15	D124&D125	Group Exercise: Special cases: Frameshifts/tRNAs/and more
	3:00	Great Hall	Break
	3:15	D124&D125	Group Exercise: A different genome
	5:30	Dining Room	Dinner
	6:45	D124&D125	Ask Graham!
7:45	Great Hall	Social	

Thursday, December 8	Time	Location	Topic
	7:15a	Dining Room	Breakfast
	8:00	D124&D125	General Debrief: Putting it all together, let's review
	8:30	D124&D125	Compiling Annotations: Notes
	9:30	D124&D125	Group Exercise: Notes
	10:15	Great Hall	Break
	10:30	D124&D125	BabyDotz: reverse genes and TAC, another genome - tRNAs
	11:30	D124&D125	Group work on BabyDotz & others
	12:30p	Dining Room	Lunch
	1:15	D124&D125	What's New in Phamerator?
	2:00	D124&D125	Investigate Clusters
	3:00	Great Hall	Break
	3:15	D124&D125	Review of the Genome and other useful tools
	4:15	D124&D125	Participant choice: What do you want to see again
	5:30	Dining Room	Dinner
6:45	D124&D125	Inside the Black Box: Sequencing and Finishing Phage Genomes	
7:45	Pilot	Social	

Friday, December 9	Time	Location	Topic
	7-8:00a	Conference Center	Room Checkout (<i>Participants may store their luggage in the Conference Center</i>)
	7:15	Dining Room	Breakfast
	8:00	D124&D125	Reflection on Annotation Process
	8:30	D124&D125	Best Classroom Practices to Improve Genome Annotations
	8:35	D124&D125	Group Discussions: Best Classroom Practices to Improve Genome Annotations
	9:15	D124&D125	Reporting of Group Discussion Information
	10:00	Great Hall	Break
	10:15	D124&D125	Faculty Panel: Examples of Successful Bioinformatics Implementation
	11:45	D124&D125	Closing Remarks
	12:00p	D124&D125	Adjournment