

Learning Objectives	Participants will be able to: <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, PECAAN, 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 4	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 5	8:15	<i>Dining Room</i>	<i>Breakfast</i>
	9:00	<i>D124&D125</i>	Draft Functional Annotation
	10:00	<i>Great Hall</i>	<i>Break</i>
	10:15	<i>D124&D125</i>	Guiding Principles* Calling the Genes*
	11:30	<i>D124&D125</i>	Calling the Genes*
	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>
	4:00	<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

	Time	Location	Topic
Wednesday, December 6	8:15	<i>Dining Room</i>	<i>Breakfast</i>
	9:00	<i>D124&D125</i>	Debrief: Specific Gene Calls
	9:30	<i>D124&D125</i>	Assigning Functions*
	10:15	<i>Great Hall</i>	<i>Break</i>
	10:30	<i>D124&D125</i>	Group Exercise: Assigning Functions
	11:00	<i>D124&D125</i>	Debrief: Assigning Functions
	11:30	<i>D124&D125</i>	Group Exercise: Formatting Concerns
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>D124&D125</i>	Group Exercise: Special Cases: Frameshifts/tRNAs/and more
	3:00	<i>Great Hall</i>	<i>Break</i>
	4:00	<i>D124&D125</i>	Group Exercise: A different genome
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>Main Auditorium</i>	Inside the Black Box: Sequencing and Finishing Phage Genomes
	7:45	<i>Pilot</i>	Social

Thursday, December 7	Time	Location	Topic
	8:15	<i>Dining Room</i>	<i>Breakfast</i>
	9:00	<i>D124&D125</i>	Putting it all together & compiling Notes
	10:15	<i>Great Hall</i>	<i>Break</i>
	10:30	<i>D124&D125</i>	Group Exercise: Notes
	11:30	<i>D124&D125</i>	Group Exercise: reverse genes and TAC, another genome - tRNAs
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>D124&D125</i>	Investigate Clusters
	2:15	<i>D124&D125</i>	What's New in Phamerator?
	3:00	<i>Great Hall</i>	<i>Break</i>
	4:00	<i>D124&D125</i>	Useful tools and Participant choice: What do you want to see again
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>D124&D125</i>	Ask Graham!
7:45	<i>Pilot</i>	Social	

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