

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, 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 10	2:00-4:00p	<i>Conference Center</i>	Registration
	4:00	<i>Main Auditorium</i>	Welcome and Annotation Overview
	4:30	<i>Main Auditorium</i>	Introduction to Comparative Genomics
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>Main Auditorium</i>	Genome Auto-Annotation
	8:00	<i>Pilot</i>	Social

	Time	Location	Topic
Tuesday, December 11	7:15a	<i>Dining Room</i>	<i>Breakfast</i>
	8:00	<i>Main Auditorium</i>	Draft Functional Annotation
	8:30	<i>Main Auditorium</i>	Gathering Data and Guiding Principles
	10:00	<i>Great Hall</i>	<i>Break</i>
	10:15	<i>Main Auditorium</i>	Calling the Genes
	11:00	<i>Main Auditorium</i>	Choosing Starts: Tools and Considerations
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>D124&D125</i>	Group Exercise: Initial Gene Calling
	2:30	<i>Main Auditorium</i>	Debrief: Initial Gene Calling
	3:00	<i>Great Hall</i>	<i>Break</i>
	3:15	<i>D124&D125</i>	Group Exercise: Specific Gene Studies
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>Main Auditorium</i>	Biological Information Flow
	7:45	<i>Pilot</i>	Social

Wednesday, December 12	Time	Location	Topic
	7:15a	Dining Room	Breakfast
	8:00	Main Auditorium	Debrief: Specific Gene Studies
	8:30	Main Auditorium	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	Main Auditorium	Debrief: Assigning Functions
	11:30	D124&D125	Group Exercise: Difficult Functions
	12:30p	Dining Room	Lunch
	1:15	D124&D125	Group Exercise: Calling more genes to complete the genome
	3:00	Great Hall	Break
	3:15	D124&D125	Group Exercise: Special cases: Frameshifts/tRNAs/Introns/Inteins/Wrap-Around/tmRNA
	5:30	Dining Room	Dinner
	6:45	Main Auditorium	Inside the Black Box: Sequencing and Finishing Phage Genomes
7:45	Pilot	Social	

Thursday, December 13	Time	Location	Topic
	7:15a	Dining Room	Breakfast
	8:00	Main Auditorium	General Debrief
	8:30	Main Auditorium	Compiling Polished Annotations: Notes
	9:30	Main Auditorium	Group Exercise: Notes
	10:15	Great Hall	Break
	10:30	D124&D125	Group Exercise: cont'd Gene Calling
	11:30	D124&D125	Group Exercise: Investigate Clusters
	12:30p	Dining Room	Lunch
	1:15	Main Auditorium	Debrief: Cluster-specific Investigations
	2:00	D124&D125	Compiling Polished Annotations: Files
	3:00	Great Hall	Break
	3:15	Main Auditorium	Bioinformatic Information Flow
	4:15	Main Auditorium	PECAAN
	5:30	Dining Room	Dinner
6:45	Main Auditorium	General Discussion	
7:45	Great Hall	Social	

Friday, December 14	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	Main Auditorium	Reflection on Annotation Process
	8:30	Main Auditorium	Best Classroom Practices to Improve Genome Annotations
	8:35	D124&D125	Group Discussions: Best Classroom Practices to Improve Genome Annotations
	9:15	Main Auditorium	Reporting of Group Discussion Information
	10:00	Great Hall	Break
	10:15	Main Auditorium	Faculty Panel: Examples of Successful Bioinformatics Implementation
	11:45	Main Auditorium	Closing Remarks
	12:00p	Main Auditorium	Adjournment