

<b>Learning Objectives</b>	<p>Participants will be able to:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Install and use the software for annotation/analyses of phages. The software includes DNA Master, Phamerator, and other web-based tools.</li> <li>• Identify basic phage biology concepts that underlie the bioinformatic investigations.</li> <li>• Devise a systematic plan for implementation of phage genomics in their classroom.</li> </ul>
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<b>Pre-req</b>	<p>Participants will bring a computer with all software installed and tested. See computer requirements and software installation information at <a href="http://seaphages.org/faculty/information/#bioinformatics">http://seaphages.org/faculty/information/#bioinformatics</a>.</p>
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Monday, December 10	Time	Location	Topic
	2:00-4:00p	<i>Conference Center</i>	<b>Registration</b>
	4:00	<i>Main Auditorium</i>	<b>Welcome and Annotation Overview</b>
	4:30	<i>Main Auditorium</i>	<b>Introduction to Comparative Genomics</b>
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>Main Auditorium</i>	<b>Genome Auto-Annotation</b>
	8:00	<i>Pilot</i>	<b>Social</b>

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

Wednesday, December 12	Time	Location	Topic
	7:15a	<i>Dining Room</i>	<i>Breakfast</i>
	8:00	<i>Main Auditorium</i>	<b>Debrief: Specific Gene Studies</b>
	8:30	<i>Main Auditorium</i>	<b>Assigning Functions</b>
	9:30	<i>D124&amp;D125</i>	<b>Group Exercise: Assigning Functions</b>
	10:15	<i>Great Hall</i>	<i>Break</i>
	10:30	<i>D124&amp;D125</i>	<b>Group Exercise: Assigning Functions (continued)</b>
	11:00	<i>Main Auditorium</i>	<b>Debrief: Assigning Functions</b>
	11:30	<i>D124&amp;D125</i>	<b>Group Exercise: Difficult Functions</b>
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>D124&amp;D125</i>	<b>Group Exercise: Frameshifts and tRNAs</b>
	3:00	<i>Great Hall</i>	<i>Break</i>
	3:15	<i>D124&amp;D125</i>	<b>Group Exercise: Introns/Inteins/Wrap-Around/tmRNA</b>
	5:30	<i>Dining Room</i>	<i>Dinner</i>
	6:45	<i>Main Auditorium</i>	<b>Inside the Black Box: Sequencing and Finishing Phage Genomes</b>
7:45	<i>Pilot</i>	<b>Social</b>	

Thursday, December 13	Time	Location	Topic
	7:15a	<i>Dining Room</i>	<i>Breakfast</i>
	8:00	<i>Main Auditorium</i>	<b>General Debrief</b>
	8:30	<i>Main Auditorium</i>	<b>Compiling Polished Annotations: Notes</b>
	9:30	<i>Main Auditorium</i>	<b>Compiling Polished annotations: Files</b>
	10:15	<i>Great Hall</i>	<i>Break</i>
	10:30	<i>D124&amp;D125</i>	<b>Group Exercise: Recording Notes</b>
	11:30	<i>D124&amp;D125</i>	<b>Group Exercise: Investigate Clusters (worksheet provided)</b>
	12:30p	<i>Dining Room</i>	<i>Lunch</i>
	1:15	<i>Main Auditorium</i>	<b>Debrief: Cluster-specific Investigations</b>
	2:00	<i>D124&amp;D125</i>	<b>Compiling Polished Annotations: Files</b>
	3:00	<i>Great Hall</i>	<i>Break</i>
	3:15	<i>Main Auditorium</i>	<b>Bioinformatic Information Flow</b>
	4:15	<i>Main Auditorium</i>	<b>Optional: Review and Q&amp;A</b>
	5:30	<i>Dining Room</i>	<i>Dinner</i>
6:45	<i>Main Auditorium</i>	<b>Ask Graham!</b>	
7:45	<i>Pilot</i>	<b>Social</b>	

	<b>Time</b>	<b>Location</b>	<b>Topic</b>
<b>Friday, December 14</b>	7-8:00a	<i>Conference Center</i>	<b>Room Checkout</b> ( <i>Participants may store their luggage in the Conference Center</i> )
	7:15	<i>Dining Room</i>	<i>Breakfast</i>
	8:00	<i>Main Auditorium</i>	<b>Reflection on Annotation Process</b>
	8:30	<i>Main Auditorium</i>	<b>Best Classroom Practices to Improve Genome Annotations</b>
	8:35	<i>D124&amp;D125</i>	<b>Group Discussions: Best Classroom Practices to Improve Genome Annotations</b>
	9:15	<i>Main Auditorium</i>	<b>Reporting of Group Discussion Information</b>
	10:00	<i>Great Hall</i>	<i>Break</i>
	10:15	<i>Main Auditorium</i>	<b>Faculty Panel: Examples of Successful Bioinformatics Implementation</b>
	11:45	<i>Main Auditorium</i>	<b>Closing Remarks</b>
	12:00p	<i>Main Auditorium</i>	<b>Adjournment</b>