HOWARD HUGHES MEDICAL INSTITUTE

**SEA-PHAGES Bioinformatics Workshop**

December 8-12, 2017 | HHMI Headquarters

AGENDA

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| **Learning Objectives** | Participants will be able to:   * 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>. |

| **Friday, December 8** | ***Time*** | ***Location*** | ***Topic*** |
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| 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 | *Main Auditorium* | **Welcome and Annotation Overview** |
| 4:30 | *Main Auditorium* | **Introduction to Comparative Genomics** |
| 5:30 | *Dining Room* | *Dinner* |
| 6:45 | *Main Auditorium* | **Genome Auto-Annotation** |
| 8:00 | *Pilot* | **Social** |

| **Saturday, December 9** | ***Time*** | ***Location*** | ***Topic*** |
| --- | --- | --- | --- |
| 7:15a | *Dining Room* | *Breakfast* |
| 8:00 | *Main Auditorium* | **Draft Functional Annotation** |
| 8:30 | *Main Auditorium* | **Gathering Data and Guiding Principles** |
| 10:00 | *Great Hall* | *Break* |
| 10:15 | *Main Auditorium* | **Calling the Genes** |
| 11:00 | *Main Auditorium* | **Choosing Starts: Tools and Considerations** |
| 12:30p | *Dining Room* | *Lunch* |
| 1:15 | *D124&D125* | **Group Exercise: Initial Gene Calling** |
| 2:30 | *Main Auditorium* | **Debrief: Initial Gene Calling** |
| 3:00 | *Great Hall* | *Break* |
| 3:15 | *D124&D125* | **Group Exercise: Specific Gene Studies** |
| 5:30 | *Dining Room* | *Dinner* |
| 6:45 | *Main Auditorium* | **Biological Information Flow** |
| 7:45 | *Pilot* | **Social** |

| **Sunday, December 10** | ***Time*** | ***Location*** | ***Topic*** |
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| 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: Frameshifts and tRNAs** |
| 3:00 | *Great Hall* | *Break* |
| 3:15 | *D124&D125* | **Group Exercise: 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** |

| **Monday, December 11** | ***Time*** | ***Location*** | ***Topic*** |
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| 7:15a | *Dining Room* | *Breakfast* |
| 8:00 | *Main Auditorium* | **General Debrief** |
| 8:30 | *Main Auditorium* | **Compiling Polished Annotations: Notes** |
| 9:30 | *D124&D125* | **Group Exercise: Notes** |
| 10:15 | *Great Hall* | *Break* |
| 10:30 | *Main Auditorium* | **Compiling Polished Annotations: Merging** |
| 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* | **Optional: Review and Q&A** |
| 5:30 | *Dining Room* | *Dinner* |
| 6:45 | *The Pilot* | **Informal discussions at the Pilot** |

| **Tuesday, December 12** | ***Time*** | ***Location*** | ***Topic*** |
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| 7-8:00a | *Conference Center* | **Room Checkout** *(Participants may store their luggage in the Conference Center)* |
| 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* | **Panel: Examples of Successful Bioinformatics Implementation**  Panelists:  *David Bollivar*  *Steve Cresawn*  *Karen Klyczek*  *Vassie Ware* |
| 11:45 | *Main Auditorium* | **Closing Remarks** |
| 12:00p | *Main Auditorium* | **Adjournment |** *Bagged Lunch (Pick up at Conference Center)* |