

2016 SEA-PHAGES Faculty Workshop Schedule

Sunday June 12

Arrival and Registration

6:00 – 7:00	Dinner	Dining Room
7:00 – 8:00	Phage Discovery Guide	Main Auditorium
8:00 – 8:15	HHMI Biointeractive	Main Auditorium
8:15 – 11:00	PubQuiz/Social	Great Hall

Monday June 13

7:30 – 8:30 AM	Breakfast	Dining Room
8:30 – 9:30	Program Update	Main Auditorium
9:30 – 10:30	Assessment Results	Main Auditorium
10:30 – 10:45	Break	Great Hall
10:45 – 11:00	Introduction to Working Groups	Main Auditorium
11:00 – 12:30	Working Groups Session I	D115, D116, D124, D125, Lounge N & S
12:30 – 1:30	Lunch	Dining Room
1:30 – 2:00	Working Groups Session I Reports	Main Auditorium
2:00 – 3:30	Working Groups Session II	D115, D116, D124, D125, Lounge N & S
3:30 – 4:00	Break	Great Hall
4:00 – 4:30	Working Groups Session II Reports	Main Auditorium
4:30 – 6:00	Working Groups Session III	D115, D116, D124, D125, Lounge N & S
6:00 – 7:00	Dinner	Dining Hall
7:00 – 7:30	Working Groups Session III Reports	Main Auditorium
7:30 – 8:30	Phage Biology Discussion	Main Auditorium
8:30 – 10:30	Social	Pilot Lounge

Tuesday, June 14 (Please remove all belongings from your room and checkout before breakfast)

7:30 – 8:30	Breakfast	Dining Room
8:30 – 10:00	Working Groups Session IV	D115, D116, D124, D125, Lounge N & S
10:00 – 10:30	Working Groups Session IV Reports	Main Auditorium
10:30 – 11:00	Break	Great Hall
11:00 – Noon	Goals & Aspirations for the Coming Year	Main Auditorium
Noon – 1:00	Lunch and Departure	Dining Room

2016 SEA-PHAGES Faculty Workshop: Working Groups

<i>Session/Time</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>	<i>Option 4</i>	<i>Option 5</i>	<i>Option 6</i>
Session 1 Monday, June 13 11 am – 12:30 pm	Increasing Diversity Main Auditorium	Assessment Tools D124	Mass Spec D125	SQL D115	Adding Sections D116	Rhodococcus Group North Lounge
Session 2 Monday, June 13 2 – 3:30 pm	Money-Saving Tips D115	Pedagogical Tools D124	RNA-Seq Main auditorium	Phage Papers D116	Restriction Digests & PET D125	Gordonia Group North Lounge
Session 3 Monday, June 13 4:30 – 6 pm	Using E-Notebooks D115	GONUTS & PECAAN D116	RNA-Seq North Lounge	Improving Annotation D124	Host Range & Xeno Projects Main Auditorium	Genome Assembly & QC D125
Session 4 Tuesday, June 14 8:30 – 10 am	DNA Master on Mac D124	DOGEMS D125	Question Bank Main Auditorium	Arthrobacter Group D116	<i>Open</i> D115	<i>Open</i> North Lounge

Detailed descriptions of each session may be found on the following pages.

Session 1

Monday, June 13

11 am – 12:30 pm

Option 1: Increasing the diversity of the phages you're isolating

In this session, Hope College and Seton Hill University will report on some changes they made to basic Smeg phage isolation protocols that resulted in finding a number of uncommon phages, including a new Singleton, a G2, two M2s, and a new A subcluster (A18). A potential product from this session would be a short guide that could be used by curious SEA-PHAGES instructors to employ some of these techniques.

Option 2: Collecting, vetting, and organizing assessment tools

A number of SEA-PHAGES institutions have developed and used their own assessment tools to measure the effects of various aspects of the SEA-PHAGES course and provide data demonstrating the course's benefits. In this session, we will begin the creation of a shared and organized repository of these instruments that can be used by other SEA-PHAGES institutions.

Option 3: Doing mass spec in a SEA-PHAGES context

In this session, details of doing mass spec on phages will be discussed, including protocols, costs, equipment, timelines, and data analysis. A potential product from this session would be a short guide to doing mass spec in a SEA-PHAGES context.

Option 4: Using SQL to ask more complicated questions of the Phamerator databases

Phamerator allows you to visualize many aspects of the relationships between phages and their proteins. Learning a bit of SQL allows you and your students to ask questions of the underlying database that aren't already built in to Phamerator.

Option 5: Expanding SEA-PHAGES at your institution

Thinking about increasing the number of SEA-PHAGES sections at your institution? Not sure about how to manage incubator space, new instructors, lecture, etc.? This session will be facilitated by several faculty members who have grown the SEA-PHAGES program at their institutions.

Option 6: Rhodococcus phage group

For those who are using any Rhodococcus host to do their phage-hunting. Can include any topics of interest to that group.

Session 2

Monday, June 13

2 pm – 3:30 pm

Option 1: Money-saving tips

This session will focus on ways you can pare down the costs of running the SEA-PHAGES wet lab course. A possible product of this session would be a guide that contained recommendations for cost-cutting that would be available to all faculty.

Option 2: Collecting, vetting, and organizing pedagogical tools

There are many, many interesting pedagogical tools that faculty members have created for use in a SEA-PHAGES classroom, including worksheets, projects, presentation guidelines, lab practicals, etc. We hope to create a repository of these tools by asking for contributions from those willing to share their work. In this session, these tools will be edited, organized, and tagged so that they may be easily used by interested SEA-PHAGES faculty.

Option 3: Doing RNA-seq in a SEA-PHAGES context

Sure, you've called the genes, but which ones are actually expressed, and when? Margaret Saha from William and Mary along with two Hatfull lab members (post-doc Bekah Detric and grad student Travis Mavrich) will talk about how to RNA-seq on phages, as well as focusing on the practical considerations of cost, equipment, time.

Option 4: Creating a guide to phage papers

One of your student hooked on lysins? Or integrases? But a literature search turns up too much information? The goal of this session would be to create a curated list of useful, well-written, and valuable phage papers arranged by topic that could be accessed whenever SEA-PHAGES students/faculty are curious about a particular topic.

Option 5: Better Digests and the Phage Enzyme Tool

There is more than one way to digest a phage! In this session, different approaches to getting the most out of your digests will be discussed, as well as the University of Louisiana, Monroe's Phage Enzyme Tool. The PET can be used quite easily to predict cluster from digest results regardless of enzyme(s) used.

Option 6: Gordonia phage group

For those who are using any Gordonia host to do their phage-hunting. Can include any topics of interest to that group.

Session 3

Monday, June 13

4:30 pm – 6 pm

Option 1: Using E-notebooks in a SEA-PHAGES course

Several SEA-PHAGES schools have switched to having their students use online electronic notebooks rather than standard paper notebooks. Benefits and drawbacks of this method could be discussed, and a short guide could be produced for those considering switching to e-notebooks.

Option 2: GONUTS and PECAAN

In this session, two new tools for working with annotations will be presented/discussed. UMBC helped pilot the use of GONUTS in SEA-PHAGES as a means of standardizing and documenting functional gene calls. PECAAN was developed at Western Kentucky University and is a tool that helps collate annotation information in a single place and produces ready-to-submit final annotation files.

Option 3: Doing RNA-seq in a SEA-PHAGES context

Repeat of the material from Session 2 for those who had a conflict. See Session 2 description for details.

Option 4: Improving your annotations, tips and pitfalls

Hear from Welkin and SMART team members about how you can attain a much higher standard of annotation in your SEA-PHAGES classroom. Common mistakes, tricky bits, and classroom setups will be discussed. If you've ever gotten an annotation returned for further work, or had many changes made to your final file, this could be for you!

Option 5: Host range and Xeno projects

This session will highlight a couple of projects that attempt to focus the considerable enthusiasm and abilities of willing SEA-PHAGES schools on two scientifically interesting questions. The first deals with the host range of a known panel of phages, and the second involves discovering escape mutants from a Xeno lysogen.

Option 6: Assembly/QC of phage genomes

Interested in doing your own assembly and QC of your phage genomes, either as a class exercise, or for extra phages you've had sequenced outside the SEA? Dan Russell and members of the GIFT will give an overview of how you can use software tools within the SEA VM to produce high-quality finished genome sequences.

Session 4

Tuesday, June 14

8:30 am – 10 am

Option 1: Running DNA Master on a Mac or Linux

If your computer labs (or students) don't use PCs, then you've probably had to deal with the difficulty of acquiring lots of Windows licenses and installing Windows VMs to run DNA Master. There is, however, an approach that allows you to run DNA Master on other platforms without the need to acquire a Windows license. A possible product would be a short guide for DNA Master on Mac or Linux.

Option 2: DOGEMS (Deconvolution of Genomes after En Masse Sequencing)

Curious about all those un-sequenced phages your students have isolated? Want to sequence every phage in your class with paying for each individually? DOGEMS is an approach that sequences pooled genomes to identify potentially interesting phages, then PCR is used to figure out which isolate goes with which genome. This technique has been successful in the limited number of samples we've tried, resulting in less common phages from Clusters P, S, T, and Z being identified. A potentially useful way to work PCR into a SEA-PHAGES course as well.

Option 3: Question bank

Writing test and quiz questions can be a chore. We hope to create a SEA-PHAGES Question Bank that would contain high-quality, organized, and vetted questions and answers that would be available to faculty to use in their courses. This session will consist of organizing, editing, and tagging the submitted questions to begin this process.

Option 4: Arthrobacter phage group

For those who are using any Arthrobacter host to do their phage-hunting. Can include any topics of interest to that group.

Note that Session 4 is intentionally left less scheduled to allow impromptu meetings on topics not covered elsewhere, potentially repeated sessions if there's more interest, faculty networking time, etc.