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

### Session/Time

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