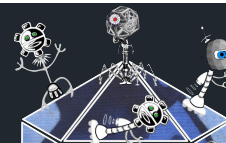


Time	Sunday, July 10	Monday, July 11	Tuesday, July 12
7:30 a.m.	7:30 - 3:00 Registration 161 Patapsco	7:30 Breakfast 161 Patapsco	7:30 Breakfast 161 Patapsco
8:30 a.m.		8:30 Lab Meeting Sharon Isern, Scott Michael 120 Meyerhoff	8:30 Lab Meeting Sharon Isern, Scott Michael 120 Meyerhoff
8:45 a.m.		8:45 LECTURE: Phage Isolation III: Direct Isolation, Plaque Assay Carl Urbinati 120 Meyerhoff	8:45 LECTURE: SEA-PHAGES Programmatic Assessment Scott Michael 120 Meyerhoff
9:15 a.m.			9:15 LECTURE: Extracting Phage DNA Marianne Poxleitner 120 Meyerhoff
9:30 a.m.	PRE-LAB READING: Chapters 1, 2, and Protocol 5.1 to Collect Environmental Samples	9:30 DEMO: Plaque Assay for Direct Isolation Carl Urbinati, Tom D'Elia SEA Lab 201 Meyerhoff	
9:45 a.m.		9:45 LAB: Plaque Assay for Direct Isolation Carl Urbinati, Tom D'Elia SEA Lab 201 Meyerhoff	
10:00 a.m.			10:00 DEMO: Extracting Phage DNA Marianne Poxleitner, Carl Urbinati SEA Lab 201 Meyerhoff
10:15 a.m.		10:15 Break 241 Meyerhoff	10:15 Break 241 Meyerhoff
10:30 a.m.		10:30 LAB: Plaque Assay for Direct Isolation (continued) SEA Lab 201 Meyerhoff	10:30 LAB: Extracting Phage DNA, Quantification Marianne Poxleitner, Carl Urbinati SEA Lab 201 Meyerhoff
10:45 a.m.		10:45 LECTURE: Working with Bacteria Priscilla Kobi SEA Lab 201 Meyerhoff	
11:00 a.m.		11:00 DEMO: Working with Bacteria Priscilla Kobi, Ann Koga SEA Lab 201 Meyerhoff	
11:15 a.m.		11:15 LAB: Working with Bacteria Priscilla Kobi, Ann Koga SEA Lab 201 Meyerhoff	
11:45 a.m.			11:45 LECTURE: Characterizing Phage DNA by Restriction Enzyme Digests Carl Urbinati 120 Meyerhoff
12:15 p.m.	12:15 Lunch 161 Patapsco	12:15 Lunch 256 Meyerhoff	12:15 Lunch 256 Meyerhoff
1:00 p.m.		1:00 LECTURE: Phage Isolation IV: Enriched Isolation, Spot Test Ann Koga 120 Meyerhoff	1:00 DEMO: Characterizing Phage DNA by Restriction Enzyme Digests Carl Urbinati, Vic Sivanathan SEA Lab 201 Meyerhoff
1:15 p.m.			1:15 LAB: Characterizing Phage DNA by Restriction Enzyme Digests Carl Urbinati, Vic Sivanathan SEA Lab 201 Meyerhoff
1:30 p.m.	Collect Environmental Samples UMBC Grounds	1:30 DEMO: Enriched Isolation: Filter Enriched Culture Ann Koga, Carl Urbinati SEA Lab 201 Meyerhoff	
1:45 p.m.		1:45 DEMO: Enriched Isolation: Spot Test Ann Koga, Carl Urbinati SEA Lab 201 Meyerhoff	
2:00 p.m.		2:00 LAB: Enriched Isolation: Filter Enriched Culture, Spot Test Ann Koga, Carl Urbinati SEA Lab 201 Meyerhoff	
2:15 p.m.			2:15 LECTURE: Phage Purification I: Picking a Plaque, Spot Test, Serial Dilutions, Plaque Assay Ann Koga 120 Meyerhoff
2:45 p.m.	2:45 Drop off Two Environmental Samples, Gather to Walk Over to Meyerhoff Chemistry Building 161 Patapsco	2:45 LECTURE: Supplies, Media & Reagent Prep, Troubleshooting Resources Vic Sivanathan, SEA Team SEA Lab 201 Meyerhoff	
3:00 p.m.	3:00 Course Directors' Welcome and Workshop Overview Sharon Isern, Scott Michael 120 Meyerhoff		3:00 LAB: Check Plates Participants, SEA Team SEA Lab 201 Meyerhoff
3:15 p.m.	3:15 Course Overview and Resources Sharon Isern, Scott Michael 120 Meyerhoff	3:15 Break 241 Meyerhoff	3:15 Break 241 Meyerhoff
3:30 p.m.	3:30 LECTURE: Phage Isolation I: Environmental Sample Collection, Phage Extraction Vic Sivanathan 120 Meyerhoff	3:30 LECTURE: Phage Purification: Serial Dilution, Plaque Assay Vic Sivanathan 120 Meyerhoff	3:30 LAB: Check Plates (continued) Participants, SEA Team SEA Lab 201 Meyerhoff
3:45 p.m.			3:45 DEMO: Spot Test to Confirm Phage Ann Koga, Tom D'Elia SEA Lab 201 Meyerhoff
4:00 p.m.	4:00 Lab Safety and Orientation Vic Sivanathan SEA Lab 201 Meyerhoff	4:00 DEMO: Phage Purification: Serial Dilutions, Plaque Assay Vic Sivanathan, Tom D'Elia SEA Lab 201 Meyerhoff	4:00 DEMO: Plaque Assay for Purification Ann Koga, Tom D'Elia SEA Lab 201 Meyerhoff
4:15 p.m.	4:15 DEMO: Sterile Technique, Phage Extraction Marianne Poxleitner, Vic Sivanathan SEA Lab 201 Meyerhoff	4:15 LAB: Phage Purification: Serial Dilutions, Plaque Assay Vic Sivanathan, Tom D'Elia SEA Lab 201 Meyerhoff	4:15 LAB: Picking Plaques, Plaque Assay for Purification, Open Lab Ann Koga, Tom D'Elia SEA Lab 201 Meyerhoff
4:30 p.m.	4:30 LAB: Phage Extraction Vic Sivanathan, Marianne Poxleitner SEA Lab 201 Meyerhoff		
5:00 p.m.	5:00 LECTURE: Phage Biology Primer Scott Michael 120 Meyerhoff		
5:30 p.m.	5:30 LECTURE: Phage Isolation II: Enriched Isolation Vic Sivanathan 120 Meyerhoff		
6:00 p.m.	6:00 Dinner 256 Meyerhoff	6:00 Dinner 256 Meyerhoff	6:00 Dinner 256 Meyerhoff
7:00 p.m.	7:00 DEMO: Enriched Isolation Vic Sivanathan, Carl Urbinati SEA Lab 201 Meyerhoff	7:00 Reorientation and Q&A Sharon Isern, Scott Michael 120 Meyerhoff	7:00 Reorientation and Q&A Sharon Isern, Scott Michael 120 Meyerhoff
7:15 p.m.	7:15 LAB: Enriched Isolation Vic Sivanathan, Carl Urbinati SEA Lab 201 Meyerhoff	7:15 Pedagogy Moment Marianne Poxleitner 120 Meyerhoff	7:15 Pedagogy Moment Ann Koga, Tom D'Elia 120 Meyerhoff
8:00 p.m.	8:00 Refreshments/Social 256 Meyerhoff	8:00 Refreshments/Social Commons Game Room	8:00 Refreshments/Social Commons Game Room
	HOMEWORK: READING: Chapters 3, 5: Phage Basics, Phage Isolation WEB: Explore seaphages.org	HOMEWORK: READING: Chapter 4, 6, 7: Host Basics, Phage Purification, Phage Amplification WEB: Explore phagesdb.org	HOMEWORK: READING: Chapters 8, 9, 10: Viewing Phage Particles by Transmission Electron Microscopy, Extracting Phage DNA, Characterizing Phage DNA by Restriction Enzyme Digests



Time	Wednesday, July 13		Thursday, July 14		Friday, July 15
7:30 a.m.	7:30 Breakfast 161 Patapsco		7:30 Breakfast 161 Patapsco		7:30 Breakfast 161 Patapsco
8:30 a.m.	8:30 Lab Meeting Sharon Isern, Scott Michael <i>SEA Lab 201 Meyerhoff</i>		8:30 Lab Meeting Sharon Isern, Scott Michael <i>SEA Lab 201 Meyerhoff</i>		8:30 LAB: Check Plates, Lab Notebook Catch-Up, Prepare for Lab Meeting <i>SEA Lab 201 Meyerhoff</i>
8:45 a.m.	8:45 LECTURE: Viewing Phage Particles by Transmission Electron Microscopy Scott Michael, Marianne Poxleitner <i>120 Meyerhoff</i>		8:45 DEMO: Calculate Lysate Titters <i>Sharon Isern</i> , Tom D'Elia <i>SEA Lab 201 Meyerhoff</i>		
9:00 a.m.			9:00 Group 1 - LAB: Mounting Phage Particles and Staining for Transmission Electron Microscopy, Viewing Phage Particles Marianne Poxleitner, Scott Michael <i>SEA Lab 201 Meyerhoff</i>	9:00 Group 2 - LAB: Calculate Lysate Titer, Making Webbed Plates from a Lysate with Known Titer, Open Lab Sharon Isern, Tom D'Elia <i>SEA Lab 201 Meyerhoff</i>	9:00 Lab Meeting Sharon Isern, Scott Michael <i>SEA Lab 201 Meyerhoff</i>
9:15 a.m.	9:15 Group 1 - LAB: Gel Electrophoresis of Restriction Enzyme Digests, Open Lab Carl Urbinati, Ann Koga <i>SEA Lab 201 Meyerhoff</i>	9:15 Group 2: DEMO: Mounting Phage Particles and Staining for Transmission Electron Microscopy <i>Marianne Poxleitner</i> , Scott Michael <i>SEA Lab 201 Meyerhoff</i>			
9:45 a.m.	9:45 Group Photographs Jim Sandoz <i>TBD</i>				9:45 LAB: Individual Bench Clean-Up <i>SEA Lab 201 Meyerhoff</i>
10:15 a.m.	10:15 Break 241 Meyerhoff		10:15 Break 241 Meyerhoff		10:15 Break 241 Meyerhoff
10:30 a.m.	10:30 Group 1 - LAB: Gel Electrophoresis of Restriction Enzyme Digests, Open Lab (continued)	10:30 Group 2: DEMO: Mounting Phage Particles and Staining for Transmission Electron Microscopy (continued)	10:30 Group 1 - LAB: Mounting Phage Particles and Staining for Transmission Electron Microscopy, Viewing Phage Particles (continued) Marianne Poxleitner, Scott Michael <i>SEA Lab 201 Meyerhoff</i>	10:30 Group 2 - LAB: Calculate Lysate Titer, Making Webbed Plates from a Lysate with Known Titer, Open Lab (continued) Ann Koga, Vic Sivanathan <i>SEA Lab 201 Meyerhoff</i>	10:30 Reorientation and Q&A Sharon Isern, Scott Michael <i>SEA Lab 201 Meyerhoff</i>
10:45 p.m.	10:45 Group 1 - DEMO: Mounting Phage Particles and Staining for Transmission Electron Microscopy <i>Marianne Poxleitner</i> , Scott Michael <i>SEA Lab 201 Meyerhoff</i>	10:45 Group 2 - LAB: Gel Electrophoresis of Restriction Enzyme Digests, Open Lab Carl Urbinati, Ann Koga <i>SEA Lab 201 Meyerhoff</i>			
11:00 a.m.					11:00 Phage Camp Challenge SEA Team <i>SEA Lab 201 Meyerhoff</i>
11:30 a.m.	11:30 LECTURE: Phage Purification II: Collecting Plate Lysates, Spot Titer, Full Plate Titer Tom D'Elia 120 Meyerhoff				
11:45 a.m.					11:45 Awards SEA Team <i>SEA Lab 201 Meyerhoff</i>
12:00 p.m.	12:00 DEMO: Flood Webbed Plate(s), Collecting Plate Lysates <i>Tom D'Elia</i> , Carl Urbinati <i>SEA Lab 201 Meyerhoff</i>				
12:15 p.m.	12:15 Lunch 256 Meyerhoff		12:15 Lunch 256 Meyerhoff		12:15 Lunch 256 Meyerhoff
1:00 p.m.	1:00 LAB: Check Plates, Flood Webbed Plate(s) Tom D'Elia, Carl Urbinati <i>SEA Lab 201 Meyerhoff</i>		1:00 Group 1 - LAB: Mounting Phage Particles and Staining for Transmission Electron Microscopy, Viewing Phage Particles (continued) Marianne Poxleitner, Scott Michael <i>SEA Lab 201 Meyerhoff</i>	1:00 Group 2 - LAB: Calculate Lysate Titer, Making Webbed Plates from a Lysate with Known Titer, Open Lab (continued) Sharon Isern, Carl Urbinati <i>SEA Lab 201 Meyerhoff</i>	1:00 Participants Depart
1:30 p.m.	1:30 DEMO: Spot Titer, Full Plate Titer <i>Ann Koga</i> , Carl Urbinati <i>SEA Lab 201 Meyerhoff</i>				
2:00 p.m.	2:00 LAB: Collect Plate Lysates, Spot Titer, Full Plate Titer, Lysogen Ann Koga, Carl Urbinati <i>SEA Lab 201 Meyerhoff</i>		2:00 Group 1 - LAB: Calculate Lysate Titer, Making Webbed Plates from a Lysate with Known Titer, Open Lab Sharon Isern, Tom D'Elia <i>SEA Lab 201 Meyerhoff</i>	2:00 Group 2 - LAB: Mounting Phage Particles and Staining for Transmission Electron Microscopy, Viewing Phage Particles Marianne Poxleitner, Scott Michael <i>SEA Lab 201 Meyerhoff</i>	
3:15 p.m.	3:15 Break 241 Meyerhoff		3:15 Break 241 Meyerhoff		
3:30 p.m.	3:30 LAB: Open Lab Tom D'Elia, Ann Koga <i>SEA Lab 201 Meyerhoff</i>		3:30 Group 1 - LAB: Calculate Lysate Titer, Making Webbed Plates from a Lysate with Known Titer, Open Lab (continued) Ann Koga, Vic Sivanathan <i>SEA Lab 201 Meyerhoff</i>	3:30 Group 2 - LAB: Mounting Phage Particles and Staining for Transmission Electron Microscopy, Viewing Phage Particles (continued) Marianne Poxleitner, Scott Michael <i>SEA Lab 201 Meyerhoff</i>	
5:00 p.m.	5:00 LECTURE: Phage Amplification Sharon Isern 120 Meyerhoff		5:00 LECTURE: Archiving Phage Carl Urbinati 120 Meyerhoff		
5:30 p.m.			5:30 LECTURE: Phage Sensitivity Assay Marianne Poxleitner 120 Meyerhoff		
6:00 p.m.	6:00 Dinner 256 Meyerhoff		6:00 Dinner 256 Meyerhoff		
7:00 p.m.	7:00 Reorientation and Q&A Sharon Isern, Scott Michael 120 Meyerhoff		7:00 Reorientation and Q&A Sharon Isern, Scott Michael 120 Meyerhoff		
7:15 p.m.	7:15 Pedagogy Moment: Getting Ready for Bioinformatics Carl Urbinati 120 Meyerhoff		7:15 Lab Stations <i>Priscilla Kobi</i> , SEA Team <i>SEA Lab 201 Meyerhoff</i>		
8:00 p.m.	8:00 Refreshments/Social <i>Commons Game Room</i>		8:00 Refreshments/Social <i>Commons Game Room</i>		
	HOMEWORK: READING: Chapters 11, 12: Characterizing Patterns of Phage Sensitivity, Toolbox, Preview to Bioinformatics		HOMEWORK: READING: Review Phage Discovery Guide, Explore Phage Instructors Guide		

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