



Marine Biotechnology & Bioinformatics for Teachers

Summer Workshop 2007 • Schedule

Information Technology Experiences for students & Teachers • NSF Grant

SCHEDULE

Monday 9-Jul		Location
9:00 AM	Overview & intros & evaluations	comp lab
9:45 AM	Pretest	comp lab
10:45 AM	Break	
11:00 AM	Tracking mussels presentation	comp lab
12:00 PM	Lunch	
1:00 PM	Introduction to Bioinformatics	comp lab
1:45 PM	Discussion: What are you doing in your classroom now?	comp lab
2:45 PM	Break	
3:00 PM	General lab skills & lab conduct discussion	wet lab
3:30 PM	Practice lab skills pipetting exercise	wet lab
4:30 PM	Field Safety and Mussel Collection PPT	comp lab
4:45 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
Extra Learning	(XL) Know your Organism, Meet the Molecules, Invasive Species PPT's	
Homework	Tech & pedagogy survey	
	Quiz 1: Lab Safety and Procedure	
Tuesday 10-Jul		
9:00 AM	Collect mussels	Moss Landing
10:45 AM	Break	
11:00 AM	Mussel dissection PPT, dissection & tissue extraction	wet lab
12:30 PM	Lunch with discussion	
1:30 PM	DNA extraction PPT	wet lab
2:00 PM	Gel electrophoresis PPT & gel loading exercise	wet lab
3:15 PM	Break	
3:30 PM	Webquest, Project Based Learning, Pedagogical Learning Cycle	comp lab
4:30 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
XL	DNAi Activity - Finding the Structure	
Eve	Quiz 2: Mussel Collection and Dissection	
	Quiz 3: Gel Electrophoresis	

Wednesday 11-Jul		
9:00 AM	Finish DNA extractions	wet lab
11:15 AM	Break	
11:30 AM	Load DNA gel	wet lab
12:00 PM	Lunch	
1:00 PM	DNA sequence viewing & editing with Chromos	comp lab
2:00 PM	View DNA and make working stock	wet lab
2:45 PM	Break	
3:00 PM	PCR PPT & Paper priming exercise	comp lab
4:30 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
XL	Quantifying DNA PPT & analyze DNA gel	
Eve	Marine Invasions Discussion w/ Dr. Jon Geller Quiz 4: DNA Extraction Working Stock DNA	comp lab

Thursday 12-Jul		Location
9:00 AM	Set up CO3 PCR	wet lab
10:00 AM	Break	
10:15 AM	Genbank and Blast searches	comp lab
12:00 PM	Lunch with discussion	
1:00 PM	Load CO3 gels	wet lab
1:30 PM	Webquest and Project Based Learning	comp lab
3:30 PM	Break	
3:45 PM	View CO3 gels	wet lab
4:15 PM	DNA purification PPT	wet lab
4:30 PM	Review today and plan tomorrow	wet lab
5:00 PM	End	
XL	The Theory Behind the Searches	
Eve	Transferring and sharing files Quiz 5: PCR	comp lab

Friday 13-Jul		
9:00 AM	Purify CO3 PCR products	wet lab
10:15 AM	Load aliquot on gel	wet lab
10:45 AM	Break	
11:00 AM	DNA sequencing PPT & commercial prep	comp lab
11:45 PM	Lunch	
12:45 PM	View CO3 gels & prepare to send for seq'ing	wet lab
1:15 PM	Align DNA sequences w/ Clustal	comp lab
2:30 PM	Break	
2:45 PM	Lesson planning and STEM careers	comp lab
4:30 PM	Review today and plan Monday	comp lab
5:00 PM	End	
XL	DNAi Activity - Techniques - PCR Quiz 6: DNA Purification	

Monday 16-Jul		
9:00 AM	Mitochondria vs. nucleus PPT & exercise	comp lab
10:00 AM	Break	
10:15 AM	Set up ITS and Glu PCRs	wet lab
11:00 AM	Glu primer paper exercise	comp lab
12:00 PM	Lunch	
1:00 PM	Glu primer computer exercise	comp lab
2:00 PM	Translation & Open Reading Frames-ORF finder	comp lab
3:00 PM	Break	
3:15 PM	Lesson planning on related thematic topics	comp lab
4:30 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
XL	PCR Troubleshooting PPT & PCR Math Activity	
Eve	PowerPoint presentations	

Tuesday 17-Jul		Location
9:00 AM	Restriction digestion PPT & ITS digest set up	wet lab
9:45 AM	Load ITS digest and Glu PCR gels	wet lab
10:15 AM	Break	
10:30 AM	ITS digest on website and paper exercise	comp lab
11:30 AM	Align Proteins w/ Clustalx	comp lab
12:15 PM	Lunch with discussion	
1:15 PM	View and analyze gels	wet lab
2:15 PM	Break	
2:30 PM	View 3D proteins - Cn3D	comp lab
3:30 PM	Start working with own sequences	comp lab
4:30 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
XL	Structural Visualization DNAi Activity - Techniques - Cutting & Pasting	

Wednesday 18-Jul		
9:00 AM	Discussion: Biotech in your future classroom?	comp lab
10:00 AM	Creating phylogenetic trees w/ Drawtree	comp lab
11:00 AM	Break	
11:15 AM	Are whales hippos? exercise	comp lab
12:15 PM	Lunch	
1:15 PM	Continue working with own sequences	comp lab
3:15 PM	Break	
3:30 PM	Intro to Japanese lesson study	comp lab
4:15 PM	Lesson planning on related thematic topics	comp lab
4:45 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	
XL	Primer Design PPT & Activity	
Eve	Working with underrepresented youths	

Thursday 19-Jul		
9:00 AM	Compare nucleotide & protein trees	comp lab
10:00 AM	Continue working with own sequences	comp lab
10:45 AM	Break	
11:00 AM	Continue working with own sequences	comp lab
12:00 PM	Lunch with discussion	
1:00 PM	Telecommunications and web-conferencing	comp lab
3:00 PM	Break	
3:15 PM	Use of digital cameras and camcorders	comp lab
4:00 PM	Scope and sequence for lessons	comp lab
4:45 PM	Review today and plan tomorrow	comp lab
5:00 PM	End	

Eve Poster presentations comp lab

Friday 20-Jul		Location
9:00 AM	Discussion: Bioinformatics in your classroom?	comp lab
10:00 AM	Continue with own sequences and lesson planning	comp lab
10:45 AM	Break	
11:00 AM	continue	comp lab
12:00 PM	Lunch	
1:00 PM	continue	comp lab
2:45 PM	Break	
3:00 PM	continue	comp lab
4:45 PM	Review today and plan week 3	comp lab
5:00 PM	End	

Sunday 22-Jul		Location
12:00 PM	Icebreaker with UB & RISE students	MLML
12:30 PM	BBQ	
1:30 PM	What do marine scientists do? PPT	
2:00 PM	Tour of marine lab	
2:30 PM	Pick an activity: Comb the beach Creatures at the Marina See our boats	
4:30 PM	End	

Monday 23-Jul		Location
9:00 AM	Teachers work on sequences and lesson planning	comp lab
10:00 AM	MBB staff introduces project to students	comp lab 2
11:00 AM	MBB staff teaches students Participant teachers do Japanese Lesson Study	wet lab
12:00 PM	Lunch	
1:00 PM	MBB staff teaches students Participant teachers do Japanese Lesson Study	comp lab
3:00 PM	Students end	
3:00 PM	Teachers work on sequences and lesson planning	comp lab
5:00 PM	Teachers end	
Eve	High-end bioinformatics	comp lab

Tuesday 24-Jul		Location
9:00 AM	Teachers work on sequences and lesson planning	comp lab
10:00 AM	Teachers in Grp #2 & 3 work on sequences & lesson planning Teacher Group #1 teaches students Teacher Group #1 also does Japanese Lesson Study	comp lab TBA
12:00 PM	Lunch	
1:00 PM	Teacher Group #1 teaches students Teacher Group #1 also does Japanese Lesson Study	TBA
3:00 PM	Students end	
3:00 PM	Teachers work on sequences and lesson planning	comp lab
5:00 PM	Teachers end	

Wednesday 25-Jul		Location
9:00 AM	Teachers work on sequences and lesson planning	comp lab
10:00 AM	Teachers in Grp #1 & 3 work on sequences & lesson planning Teacher Group #2 teaches students Teacher Group #2 also does Japanese Lesson Study	comp lab TBA
12:00 PM	Lunch	
1:00 PM	Teacher Group #2 teaches students Teacher Group #2 also does Japanese Lesson Study	TBA
3:00 PM	Students end	
3:00 PM	Teachers work on sequences and lesson planning	comp lab
5:00 PM	Teachers end	

Thursday 26-Jul		Location
9:00 AM	Teachers work on sequences and lesson planning	comp lab
10:00 AM	Teachers in Grp #1 & 2 work on sequences & lesson planning Teacher Group #3 teaches students Teacher Group #3 also does Japanese Lesson Study	comp lab TBA
12:00 PM	Lunch	
1:00 PM	Teacher Group #3 teaches students Teacher Group #3 also does Japanese Lesson Study	TBA
3:00 PM	Students end	
3:00 PM	Teachers work on sequences and lesson planning	comp lab
5:00 PM	Teachers end	

Friday 27-Jul		Location
9:00 AM	Teachers work on sequences and lesson planning	comp lab
10:00 AM	Field trip for students Field trip optional for teachers	TBA
12:00 PM	Lunch	
1:00 PM	Teachers work on sequences and lesson planning Or participate in field trip	comp lab
3:00 PM	Field trip ends	
3:00 PM	Debrief for students	comp lab 2
3:30 PM	Debrief for Teachers	comp lab
5:00 PM	Teachers end and goodbyes	