

S15 - Microbial Ecology and Biodiversity lab

Topic 1: “Everything is every where, the environment selects”

Topic 3: Gradients and interfaces – Winogradsky’s column

Topic 2: Microbes change the environment - Soil respiration

Topic 4: Clone libraries and phylogenetic analysis

Date	Lab #	Topic 1	Topic 2	Topic 3	Topic 4
1/22	1	Plating sand and sediment samples Set up LOI tests Demonstration of anaerobic work		Preparation of Winogradsky columns	
1/29	2	Count plates from lab 1 Weigh sand and compost and calculate content of organic matter Observe MPN anaerobic tubes and calculate No. of anaerobic fermentative bacteria	Set up soil incubations	Observe appearance of columns	
2/5	3	Summary	Measurement of respiration rates (1)	Observe appearance of columns	
2/12	4		Measurement of respiration rates (2)	Take columns apart	DNA extraction from environmental samples
2/19	5		Summary		PCR of 16S rRNA genes and TOPO cloning
2/26	6	Field trip to the Pinelands Field Station			
3/5	7			Pigment extraction	Transformation
3/12	8			Paper chromatography of pigments	Pick colonies and purify DNA
3/26	9				PCR 16S rRNA genes of clones
4/2	10	Field trip – Cheesequake Salt Marsh			
4/9	11			Summary	Run a gel with PCR products from 3/28 Visit to the barn Observe gels

4/16	12	Field trip –Sequencing Facility			Sequencing reactions Visit to sequencing facility
4/23	13				Analysis of sequences and tree building Summary
4/30	14	Students' presentations			