

Microbial Ecology **MARS 4620/6620**

Lecture: 9:05-9:55 am
Monday, Wednesday, and Friday
Marine Sciences Building, Room 251

Instructors: Dr. Mary Ann Moran
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Textbook: Required: *Microbial Ecology of the Oceans*, David L. Kirchman, Editor
Suggested: *Biology of the Prokaryotes*, Lengeler, Drews & Schlegel
(ISBN: 0-632-05357-7, Blackwell Scientific)
Additional required readings (papers) will be handed out in class

Grade Distribution:	Four exams (non-cumulative) @ 20% each	80%
	Class Exercise participation	10%
	My Favorite Microbe	10%

Classroom Exercise Days: Exercises will focus on a paper selected by the instructor and provided one week in advance. Students are required to read the paper before class and participate in the group project. Each student will be graded on their attendance and participation (10%).

My Favorite Microbe: Students will select and research an ecologically important taxon of bacteria, focusing on selected aspects of its physiology, genetics, ecology, and biogeochemistry. The last three class periods will consist of student Powerpoint presentations.

Attendance Policy: No make up exams will be given without a formal medical or family emergency excuse (from a medical doctor, academic dean, or appropriate source) presented to the instructors 24 h **before** the exam. We will take attendance only on the classroom exercise days, but students are responsible for all material presented.

Academic Honesty: All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. Collaboration among students is encouraged, but completion of ***all written and oral assignments and exams must carried out independently and be in the student's own words.***

Microbial Ecology, Fall 2003

INSTR.	DAY	DATE	LECTURE OR DISCUSSION TOPIC	REQUIRED READINGS
Moran	Mon	18-Aug	Overview and Bacterial Morphology	
Moran	Wed	20-Aug	Bacterial Biomass	Kirchman Ch. 4
Moran	Fri	22-Aug	Bacterial Activity	
Moran	Mon	25-Aug	Biomass/Activity Practicum	
Joye	Wed	27-Aug	Photoautotrophy	*Lengeler et al. Chapter 13
Joye	Fri	29-Aug	Chemoautotrophy	*Lengeler et al. Chapter 10
	Mon	1-Sep	<i>Labor Day</i>	
Joye	Wed	3-Sep	Heterotrophy-hydrolysis/fermentation	Kirchman Ch. 5, 6, 10
Joye	Fri	5-Sep	Heterotrophy-terminal metabolism	*Lengeler et al. Chapter 3, 12
Moran	Mon	8-Sep	Aerobic Trophic Strategies	
Moran	Wed	10-Sep	Oligotrophy Discussion	
Moran	Fri	12-Sep	Phylogeny of Prokaryotes	Kirchman Ch. 3
	Mon	15-Sep	<i>Class cancelled</i>	
Moran	Wed	17-Sep	Molecular Microbial Ecology: Tools	
	Fri	19-Sep	EXAM	
Moran	Mon	22-Sep	Molecular Microbial Ecology: Tools	
Moran	Wed	24-Sep	Marine Bacterial Diversity and Biogeography	
Joye	Fri	26-Sep	Carbon transformations	
Joye	Mon	29-Sep	Nitrogen transformations	Kirchman Ch. 13, 14, 15
Joye	Wed	1-Oct	Nitrogen/Carbon Cycle Discussion	*special reading
Moran	Fri	3-Oct	Bacterial Genomics, Metagenomics, and Microarrays	
	Mon	6-Oct	Movie: Intimate Strangers	
Joye	Wed	8-Oct	Phosphorus transformations	
Joye	Fri	10-Oct	Sulfur transformations	*Canfield
Joye	Mon	13-Oct	Trace metal transformations	*Thamdrup
Joye	Wed	15-Oct	Big Bacteria	*Schulz and Jørgensen
Moran	Fri	17-Oct	Culturing Prokaryotes	
	Mon	20-Oct	EXAM	
Joye	Wed	22-Oct	Thermophiles	*Lengeler et al. Ch. 28 & 31
Joye	Fri	24-Oct	Psychrophiles	*Lengeler et al. Ch. 28 & 31
Joye	Mon	27-Oct	Symbiosis and syntrophy	Kirchman Ch. 16
Joye	Wed	29-Oct	Symbiosis and syntrophy II	*special reading
	Fri	31-Oct	<i>Fall Break</i>	
Joye	Mon	3-Nov	Stromatolites and microbial mats	*special reading
Joye	Wed	5-Nov	Extremophiles Discussion	*special reading
Joye	Fri	7-Nov	Hydrocarbon metabolism	*special reading
Moran	Mon	10-Nov	Picoeukaryotes	Kirchman Ch.12, Ch. 16 pp. 508-517
Moran	Wed	12-Nov	Viruses	Kirchman Ch. 11
Moran	Fri	14-Nov	Microbial Loop	
Moran	Mon	17-Nov	Food Webs (Stella Lab)	
	Wed	19-Nov	EXAM	
Moran	Fri	21-Nov	Food Web Discussion	
Moran	Mon	24-Nov	Gene Transfer and Plasmids	
	Wed	26-Nov	<i>Thanksgiving Break</i>	
	Fri	28-Nov	<i>Thanksgiving Break</i>	
Joye	Mon	1-Dec	Bioremediation	Lengeler et al. Ch. 36, 37
Moran	Wed	3-Dec	UV Light and Microbial Ecology	Kirchman Ch. 7
Moran/Joye	Fri	5-Dec	My Favorite Microbe presentations	
Joye/Moran	Mon	8-Dec	My Favorite Microbe presentations	

**discussion papers and special readings will be handed out 1 week in advance*

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.