

Marine Microbial Ecology (287A)
(Farooq Azam; fazam@ucsd.edu; 4105 HH; x46850)
Monday, Thursday 2:00- 3:20; 4 units

Course description: In this course we will discuss major concepts in the study of microbes in the ocean, how the microbes function in their natural environments/microenvironments, and how their activities influence the grand cycles of elements, marine ecosystems, global climate and the Earth as human habitat.

Lecture 1	1/7	Introduction, goals and history of the ecological study of marine microbes
Lecture 2	1/11	Introduction; Ocean as microbial habitat I
Lecture 3	1/14	Ocean as a microbial habitat II
Lecture 4	1/15	<i>LAB: Epifluorescence, laser confocal & Atomic Force microscopy</i>
Lecture 6	1/21	Prokaryote structure/function in ecosystem context I
Lecture 7	2/25	Prokaryote structure/function in ecosystem context II
Lecture 8	2/1	Molecular phylogenetic diversity; genomics; proteomics (Eric Allen)
Lecture 9	2/4	Microbial phototrophy (Brian Palenik)
Lecture 10	2/8	Microbial behavior and nutrient uptake strategies in the sea
Lecture 11	2/11	Microbial distribution and growth of Bacteria and Archaea in the sea
Lecture 12	2/18	Fate of prokaryote production and biogeochemical implications
Lecture 13	2/22	Ecosystem roles of marine viruses (Forest Rohwer)
Lecture 14	2/25	Physiological diversity of bacteria; energy & C sources
Lecture 15	2/29	Microbial biogeochemical cycles in the ocean
Lecture 16	3/3	Deep-sea and deep subsurface microbiology (Bartlett)
Lecture 17	3/7	Integration of microbial processes into marine ecosystem function
Lecture 18	3/10	Marine microbes' structuring of oceanic biogeochemistry
Lecture 19	3/14	Microbes and marine pollutants; Ecology of marine pathogenic bacteria
Lecture 20	3/16	Marine microbes and Earth's habitability
Lecture 21	3/17	Discussion

*** 3/16, 18: pl arrange ½ individual discussion time*

Please note:

1) 1-2 papers will be assigned for each lecture

**2) Individual ~1/2h sessions with the instructor for feedback on the take-home exam as well as discussion of the course material

3) Guest lectures' schedule to be confirmed