

Marine Microbial Ecology (287A)
(Farooq Azam; fazam@ucsd.edu; 4105 HH; x46850)
Tuesday, 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	4/4	Introduction, goals and history of the ecological study of marine microbes
Lecture 2	4/6	Ocean as microbial habitat I
Lecture 3	4/11	Ocean as a microbial habitat II
Lecture 4	4/13	LAB: Epifluorescence, laser confocal & Atomic Force microscopy
Lecture 6	4/18	Prokaryote structure/function in ecosystem context I
Lecture 7	4/20	Prokaryote structure/function in ecosystem context II
Lecture 8	4/25	Microbial phototrophy (Brian Palenik—to be confirmed)
Lecture 9	4/27	Molecular phylogenetic diversity; genomics; proteomics (Eric Allen)
Lecture 10	5/2	Microbial behavior and nutrient uptake strategies in the sea
Lecture 11	5/4	Microbial distribution and growth of Bacteria and Archaea in the sea
Lecture 12	5/9	Fate of prokaryote production and biogeochemical implications
Lecture 13	5/11	Ecosystem roles of marine viruses (Forest Rohwer—to be confirmed)
Lecture 14	5/16	Deep-sea and deep subsurface microbiology (Bartlett)
Lecture 15	5/18	Microbial biogeochemical cycles in the ocean
Lecture 16	5/23	Physiological diversity of bacteria; energy & C sources
Lecture 17	5/25	Integration of microbial processes into marine ecosystem function
Lecture 18	5/30	Marine microbes' structuring of oceanic biogeochemistry
Lecture 19	6/1	Microbes and marine pollutants; Ecology of marine pathogenic bacteria
Lecture 20	6/6	Marine microbes and Earth's habitability
Lecture 21	6/8	Discussion

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

* 1-2 papers will be assigned for each lecture

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

Guest lectures' schedule to be confirmed