
Section ID: **789346** Subject: **SIO** Course: **128** Sec: **A00** Title: **Microbial Life in Extreme Env.** Units: **4.00** Term: **FA13**

Type **LE** Days: **MWF** Time: **10:00a - 10:50a** Room: **YORK 4080A** Instructor: **Bartlett, Douglas H** (Primary)
Capacity: **50**

SIO128

Microbial Life in Extreme Environments

Prerequisites: any other microbiology class or consent of instructor

This course will highlight the weird and wonderful things microbes do to influence our lives and the characteristics of Earth. It is hoped that by highlighting the strangest of the strange that students will acquire a lifelong sense of fascination and wonder with the nature and diversity of the largely invisible microbial life forms present throughout the biosphere. Examples will include cloud formation, mineral precipitations, bacteria with rocket fuel in their membranes, giant microbes in fish guts, the viruses of viruses, radiation resistance in the Atacama desert, microbes that live off of the effects of radioactive potassium, how microbes that like high pH got into your laundry detergent, and microbial survival for millions of years in amber, brine inclusions and deep subsurface sediments.

Date	Subject	Student Presentation
Friday, 9/27/13	Introduction to the class	
Monday, 9/30/13	Piezophiles	
Wednesday, 10/2/13	Thermophiles I	
Friday, 10/4/13	Thermophiles II, Quiz 1	
Monday, 10/7/13	Methanotrophs	
Wednesday, 10/9/13	Psychrophiles	
Friday, 10/11/13	Halophiles, Quiz 2	
Monday, 10/14/13	Acidophiles	Radha (?)
Wednesday, 10/16/13	Alkaliphiles	Nicole
Friday, 10/18/13	Extremophile Biotechnology	Caine
Monday, 10/21/13	Science paper review #1	
Wednesday, 10/23/13	Low nutrient adaptation	Nathan
Friday, 10/25/13	Mineral precipitation	Brian
Monday, 10/28/13	Midterm Exam	
Wednesday, 10/30/13	Radiation resistance	Cindy
Friday, 11/1/13	Ancient microbes	Rebecca
Monday, 11/4/13	Air/aerosol microbes	Alexander
Wednesday, 11/6/13	Giant microbes	Lee
Friday, 11/8/13	Bacteria with organelles	Jillian
Monday, 11/11/13	Veteran's Day	
Wednesday, 11/13/13	Deep subsurface	Brenton

Friday, 11/15/13	Living off radioactivity	Cassandra
Monday, 11/18/13	Life in ice	Madison
Wednesday, 11/20/13	Science paper review #2	
Friday, 11/22/13	Electromicrobiology	Kevin
Monday, 11/25/13	Stress responses	Joyce
Wednesday, 11/27/13	Origin of Life/ Serpentinization	Ariya
Friday, 11/29/13	Thanksgiving Holiday	
Monday, 12/2/13	Astrobiology I	Christa
Wednesday, 12/4/13	Astrobiology II	Lina
Friday, 12/6/13	Final Exam	

Grading:

Attendance – 10 points

Quiz (only the highest scoring quiz will be counted) – 10 points

First Exam – 80 points

Second Exam – 80 points

Student extremophile microbial species presentation – 20 points*

*With regard to the student present; students will select a microbial species belonging to the theme of the class period they have been assigned and present its noteworthy characteristics. Each presentation will be seven minutes in length. It will be divided into an introduction to the general topic of the day, the characteristics of the microbe you have selected that belongs to this extremophile group, the significance of this microbe in terms of taxonomy, adaptation and perhaps biotechnology, along with anything else you feel is pertinent, what you think is left to be studied in this species, and a summary of your presentation. You should have as a last slide a list of at least six references. These cannot be websites but must be peer-reviewed scientific papers. You will mostly be graded on the substance of your presentation, but you will also be graded on the quality of your slides and your ability to answer questions related to your presentation.

Class website: <http://ted.ucsd.edu>

Grading options: Letter or S/U