

Microbial Life 16:682:501 - Fall 2017

Monday and Wednesday 3.55-5.15 pm, CDL 103

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Reading: *The Prokaryotes* (on Sakai), any recent microbiology textbook (e.g., Brock Biology of Microorganisms; Staley, Gunsalus, Lory & Perry: Microbial Life; or Prescott, Harley & Klein: Microbiology) **and assigned articles.**

Course web site: sakai.rutgers.edu

Lecture	Date	Topic	Lecturer
1	Wed Sept 6	Introduction and course structure	MH LK, CV
2	Mon Sept 11	Microbial life on early earth	LK
3	Wed Sept 13	Cell structure and function	LK
4	Mon Sept 18	Making a living – Microbial growth and metabolism	MH
5	Wed Sept 20	Boundaries of microbial life	MH
6	Mon Sept 25	Microbial taxonomy and the concept of a species	MH
7	Wed Sept 27	The Tree of Life: Molecules and evolution	LK
8	Mon Oct 2	Exam I (covers Lectures 1-7)	
9	Wed Oct 4	The sunny side of life: Photosynthesis	LK
10	Mon Oct 9	The dark side of life: Chemosynthesis	CV
11	Wed Oct 11	Biogeochemical cycles	LK
12	Mon Oct 16	Geomicrobiology	LK
13	Wed Oct 18	Raiders of the lost Archaea	CV
14	Mon Oct 23	Microbial genetics	CV
15	Wed Oct 25	Fungi: fuzzy eukaryotes	Ning Zhang
16	Mon Oct 30	The edge of life: Viruses	Siobain Duffy
17	Wed Nov 1	Microbiomes	Liping Zhao
18	Mon Nov 6	Exam II (covers lectures 9-17)	
19	Wed Nov 8	How to get there: Moving around or staying in place	MH
20	Mon Nov 13	Symbiotic relationships	CV
21	Wed Nov 15	Domestication of microbes: Industrial applications	MH
22	Mon Nov 20	Bioenergy	MH
	Wed Nov 20	No Class--Thanksgiving	
23	Mon Nov 27	Pathogenic microbes	Jeff Boyd
24	Wed Nov 29	Probiotics: Microbial good guys	Mike Tchikindas
25	Mon Dec 4	“Omics” and their applications in microbiology	CV
26	Wed Dec 6	Living in the microbial world	LK MH
27	Mon Dec 11	Wrapping it up - My favorite microbes	Class
28	Wed Dec 13	Exam III (covers Lectures 1-27)	

Examinations: I. Covering lectures 1-7; **II.** Covering lectures 9-17; **III.** Comprehensive exam.

Grading: Exam I 20%, Exam II 30 % and Exam III 30%, Term paper and presentation 20%.

**Term Paper:
“A day in the life of my favorite microbe”**

For us to cover a broader range of different microorganisms we ask that you gather information on your “favorite” microorganism. This will be the topic of your term paper and you should also prepare a 1-page summary handout for the class.

You need to get your organism approved by us by September 25th. In order to get broad microbial coverage we will accept only limited members of the same phyla. In case of overlap, topics will be assigned on a first come basis (first proposed species has priority).

Term Paper:

Aim for approximately 10 pages + references. Use the ASM reference style of *Journal of Bacteriology*.

In your paper you should address the following:

- Source organism and details of the original description (when, where, who....) and taxonomy (genus, species). This should typically include reference to the original publication.
- What is the Type strain or specimen
- Other sources of isolates, where are they deposited (Culture collections)
- What is the habitat, niche, physiology, etc.... of the organism
- Any other interesting characteristics

Prepare a 1-page handout and 3-minute “elevator talk” summarizing your organism.

Term Papers and 1-page summaries are due on or before **Monday, November 27th**. Your paper must be deposited through the Sakai Assignments portal by midnight. The file names should include your last name and genus (e.g. Smith_Acidovorax.doc). Acceptable formats include .doc .docx and .pdf.

Note, the term papers for Microbial Life will be analyzed for textual similarity to other publications and sources via plagiarism detection software. Any direct duplication of large portions of text without proper citation may be considered plagiarism and would be a serious breach of ethical scientific conduct. This includes copying sentences or paragraphs verbatim, even if the original work is cited in the references. If any source materials are placed in a document verbatim, the directly quoted text should be placed in quotation marks. You are expected to paraphrase and synthesize the scientific literature for this assignment.

You should read and understand the Rutgers Academic Integrity Policy
<http://academicintegrity.rutgers.edu>

The Term Paper and Presentation will count for 20% of the final grade.