

# MICROBIAL ECOLOGY 2013 SYLLABUS

## MMBB J425/J525, SOIL J425/J525, Microbial Ecology

**Instructor:** Guy R. Knudsen  
Professor, Soil and Land Resources Division  
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**Class Room & Time:** Ag Science 323, MWF 11:30-12:20

**Office Hours:** *By appointment (email me first)!* This is to save us all time and frustration, so I won't be sitting around waiting for someone to show up, and you won't be standing in line to talk to me. My office is 109 Ag Science.

**Textbook:** You don't need to buy a textbook. Readings will be assigned, either online (mostly) or on reserve in the library. The textbook we used to use is now out of print, but it's a good reference if you're interested in finding one: Microbial Ecology, R. M. Atlas & R. Bartha; 3<sup>rd</sup> or 4<sup>th</sup> edition. I will plan to put one copy on reserve in the library.

**Grading: Note:** exams will be in-class, however there will also be a take-home open-book set of review questions for each exam, which will be handed out ahead of time and worth 10% of the exam grade. I'll explain this more in class.

**MMBB 425, Soil 425:** 4 in-class exams (including final exam), 22% each, class participation 12% (students in 425 will have the opportunity to write a review paper for extra credit, this will be discussed once the course starts).

**MMBB 525, Soil 525:** 4 in-class exams (including final exam), 18% each, class participation 12%, review paper 16%

"class participation" = attendance + constructive interaction, especially when we have group discussion sessions!

attendance: please email me ahead of time if you can't make it to class.

(more information about the group discussions will be provided once the course starts)

**Organization of the course:** Microbial ecology is a vast and rapidly evolving area. Many university microbial ecology courses are essentially biogeochemistry courses. While we won't ignore that area by any means, we will take a broader ecological view, and spend considerable time on microbe-animal interactions (both beneficial and deleterious ones from the animal viewpoint), microbe-plant interactions, disease ecology, microbes as sources of environmental pollution as well as remediation agents, ecological challenges of genetically engineered microbes, microbes in agriculture, and other subjects. We are going to approach this by supplementing traditional lecture material with a significant amount of outside reading and class discussion (i.e., involving a lot of student participation).

One way of looking at the goals of this course is in the context of the University of Idaho learning goals: Through independent learning (e.g., readings) and collaborative study (lectures, discussions), we will attain, use and develop knowledge in microbial ecology both from the perspective of disciplinary specialization but especially through integration of information across disciplines.

Over the semester, we will be investigating four very general (and overlapping) subject areas. These subject areas are (the order of presentation will vary somewhat):

- 1) Microbial diversity and phylogeny
- 2) Biogeochemical ecology of microbes
- 3) Interactions of microbes with each other and other organisms
- 4) Environmental applications of microbial ecology

**Additional requirement for SOIL 525 and MMBB 525:** One written review paper. You may choose any topic in microbial ecology. I prefer that your topic not be a direct component of your thesis research. More information to follow, but I will ask for topics to be decided by March 4, and the papers will be due the week of April 22.