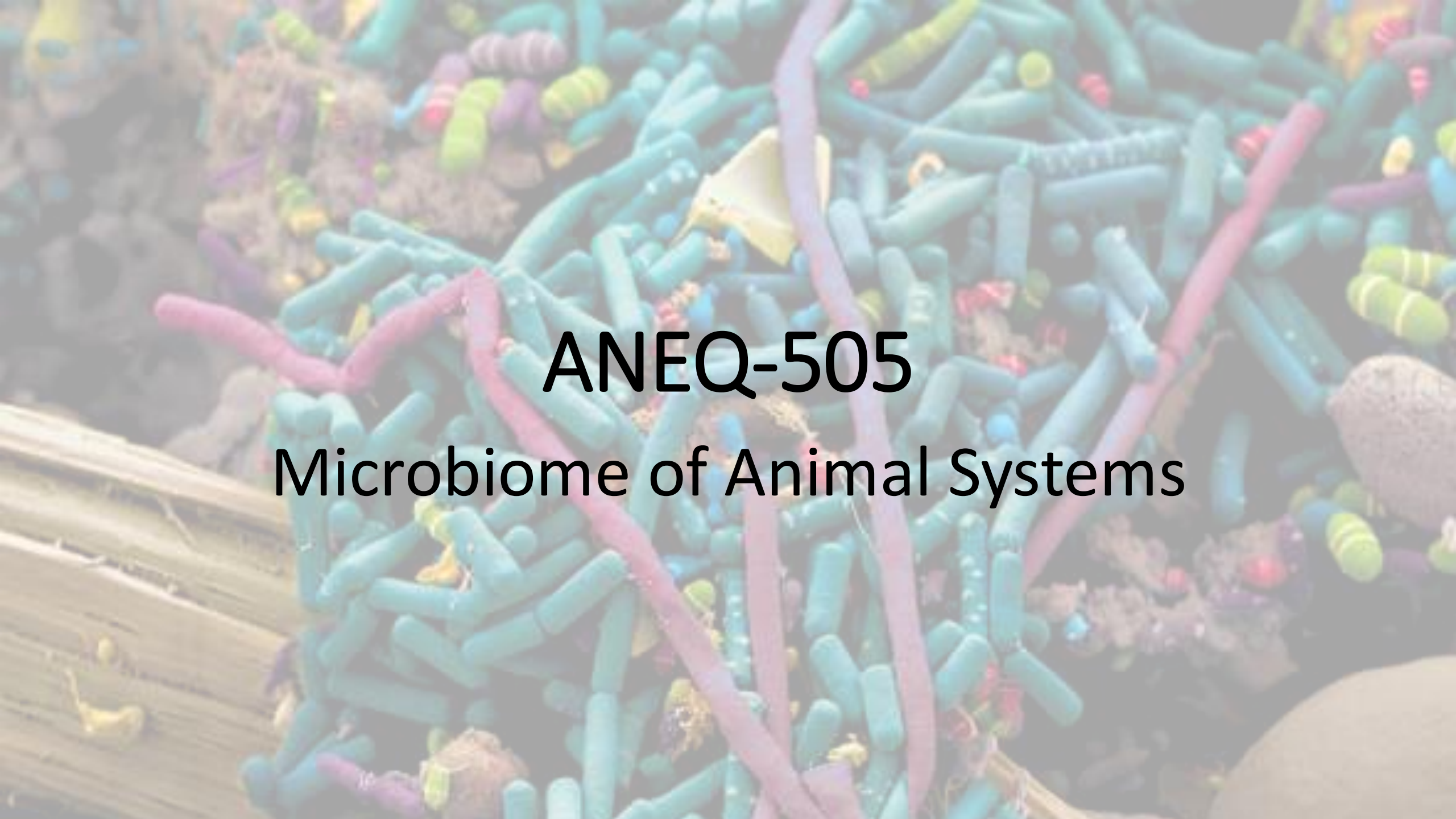
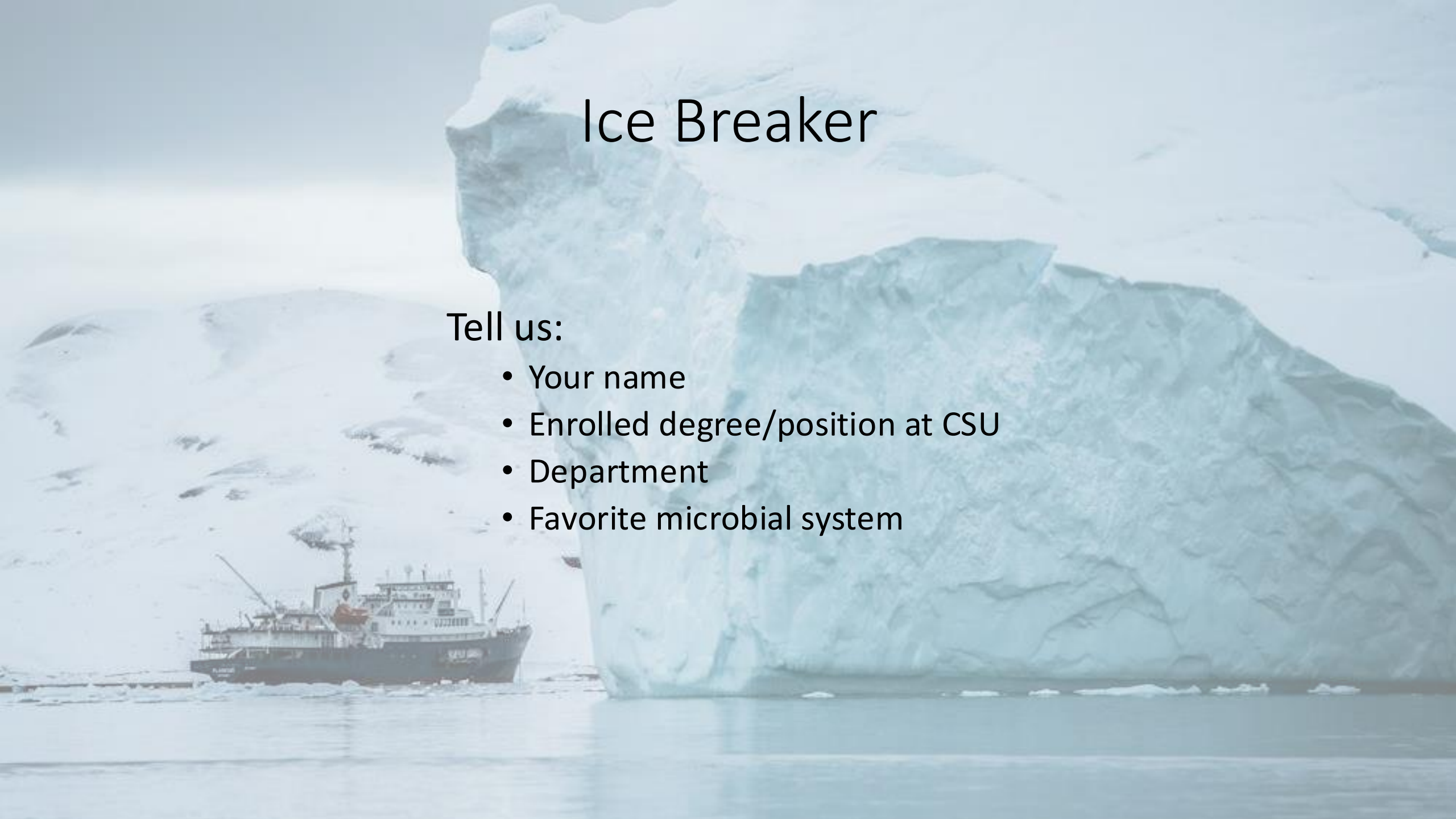


ANEQ-505

Microbiome of Animal Systems

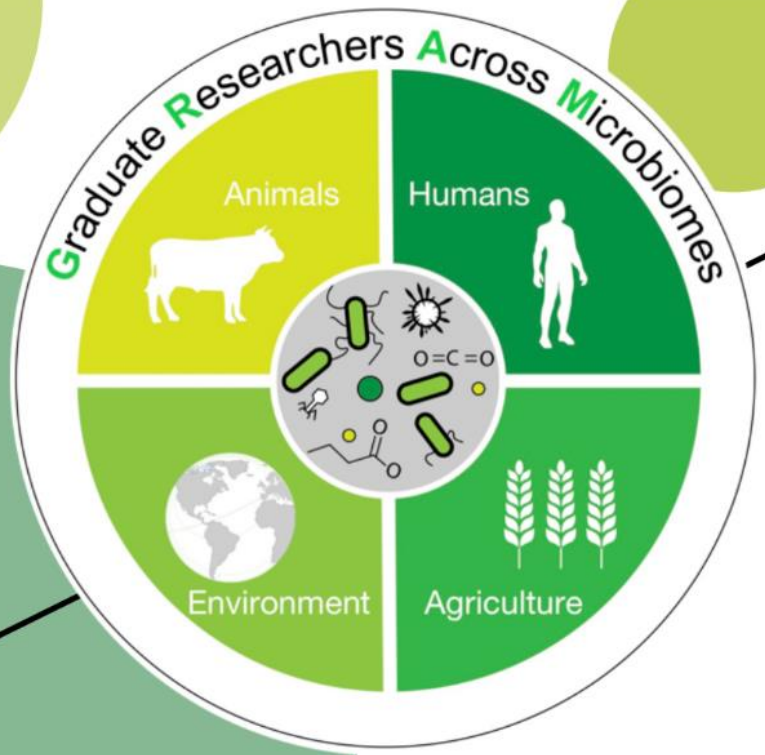


Ice Breaker

Tell us:

- Your name
- Enrolled degree/position at CSU
- Department
- Favorite microbial system

https://microbiomenetwork.colostate.edu/

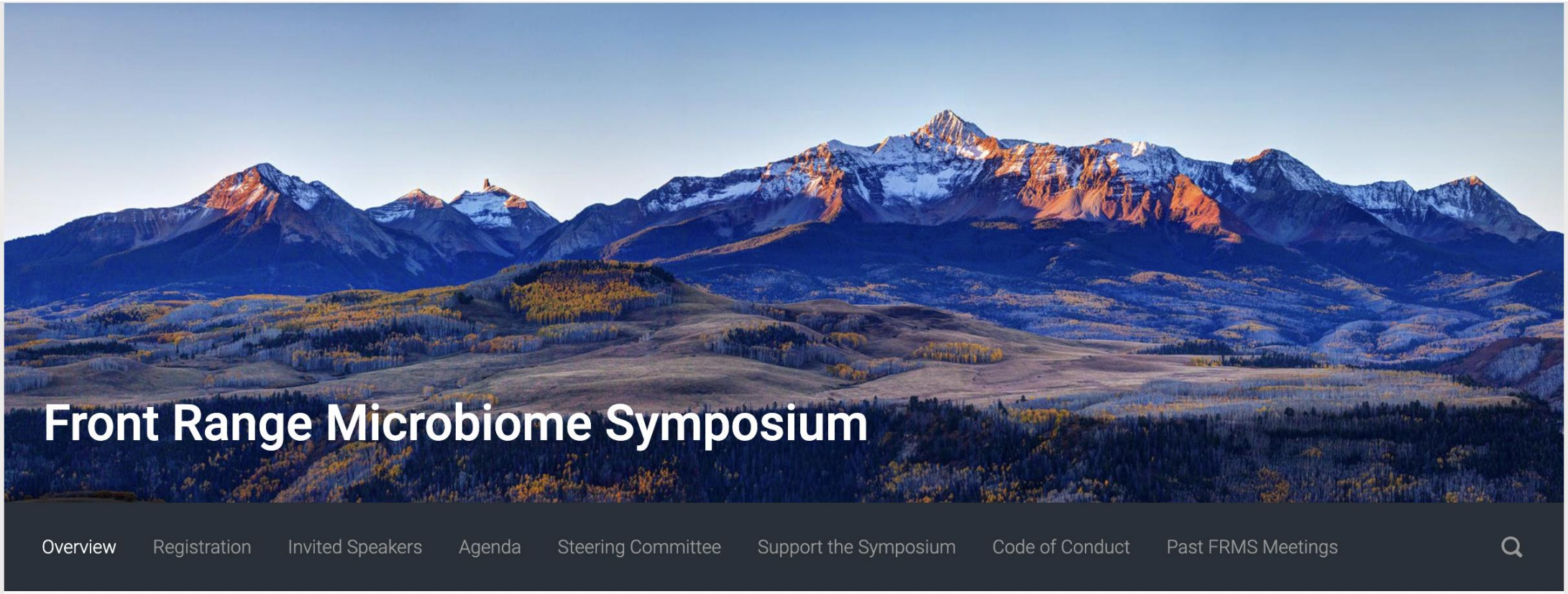


GRADUATE RESEARCHERS ACROSSS MICROBIOMES

We are a group of graduate students and post docs affiliated with several departments across campus

Our mission:

- Provide a place to connect over **microbiome research**
- Promote **professional advancement** of our members
- Cultivate and maintain a **support network** for early career scientists



Moving to every other year.. 2027, 2029, etc

Instead, we have CoSMic activities, including an 4/24 Lunch & Learn that we will encourage instead of class

Microbiome Science and Engingeering

Graduate Certificate

Graduate Certificate

Requirements and Curriculum

Certificate at a Glance

Program Code

MBSF-CT

Credits

12 credits

Certificate Overview

This certificate provides a foundation in the concepts and methods of

Start Application

Please review deadlines and admission requirements first.

Apply Now

Questions?

Request More Information

or contact Charlene Spencer

Useful links

https://www.research.colostate.edu/microbiome

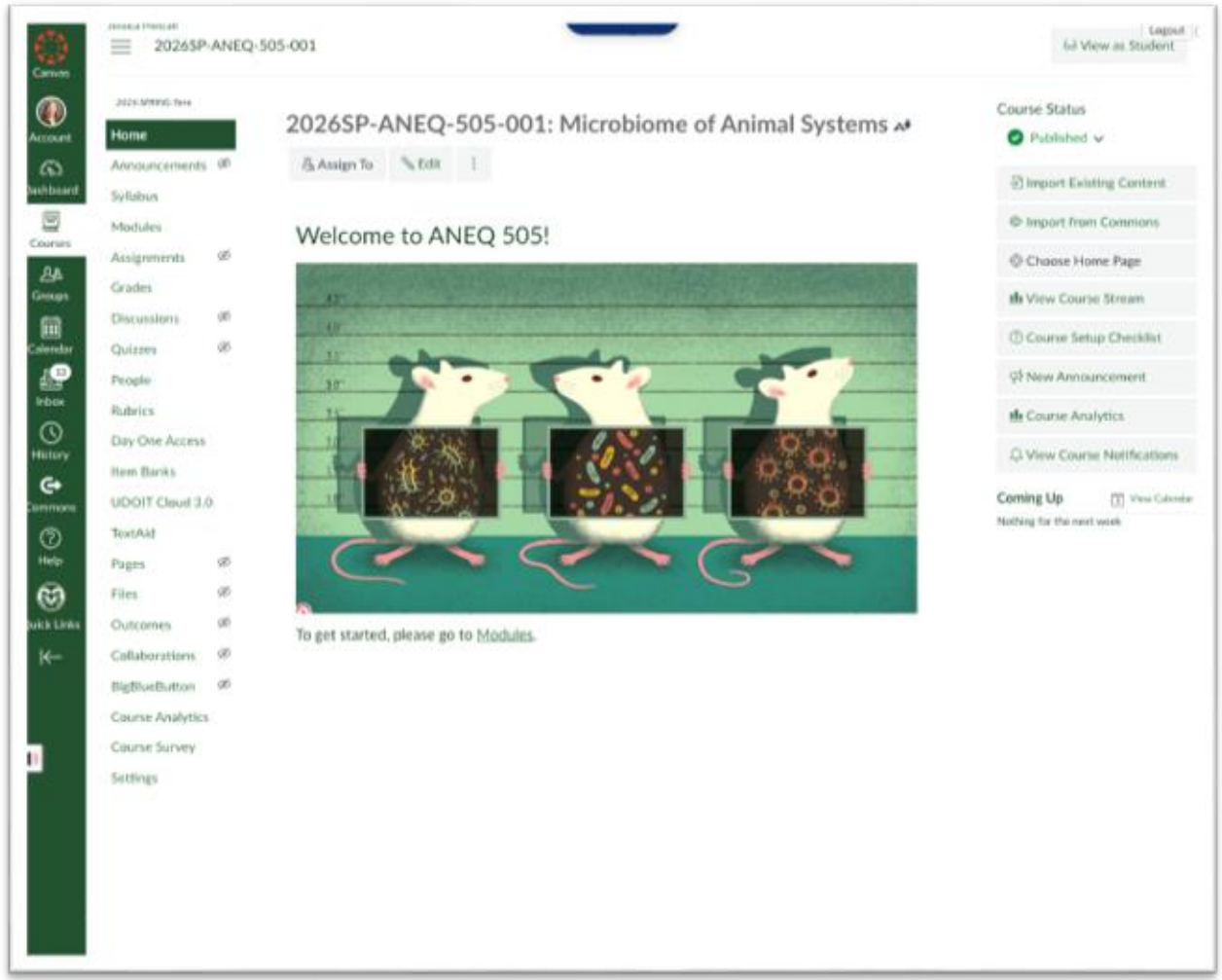
https://www.research.colostate.edu/microbiome/teaching/

https://www.research.colostate.edu/microbiome/gram/

Twitter: @GRAM_CSU

https://frontrangemicrobiomesymposium.com/

https://canvas.colostate.edu/



ANEQ-505 Course Learning Objectives

- Explain basic concepts and general trends in microbiome science
- Become an expert in strengths and weaknesses of high throughput amplicon data sets
- Become an expert in technical issues that can lead to biases or study effects during data analysis
- Install and utilize QIIME2 software for analysis of tutorial 16S rRNA data sets and a teaching data set
- Participate in project design, sampling, analysis, interpretation, and drafting methods and results text for a teaching data set generated during the semester
- Critically discuss current and fundamental literature, and understand where the field is going

Course Content

- LECTURES
- TUTORIALS 
- GROUP PROJECTS
- READINGS
- LEADING A PAPER

Grading

- Quizzes will cover information learned in lectures, tutorials, and assigned readings. 50%
- You will lead one paper. 10%
- You will analyze and describe a data set that will be assessed twice for a grade. 40%

Computing

We use the Alpine HPC, but also we will use your laptops, particularly to visualize results

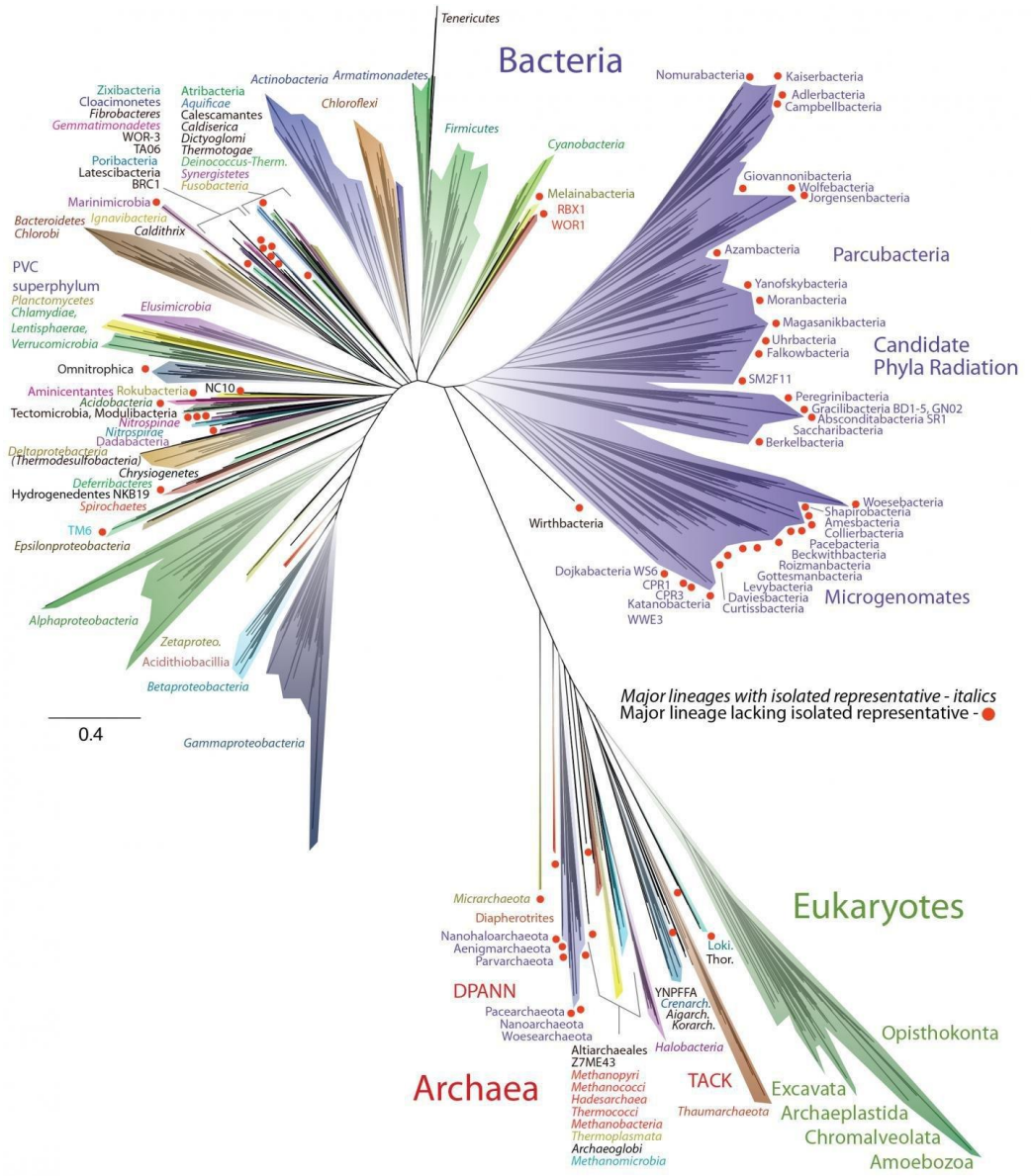
- CSU Users:
  - Get Started with Alpine, CSU page
  - Fill out account application form, if needed
  - Duo authentication
  - Then get an RC user account

Define “microbiome”

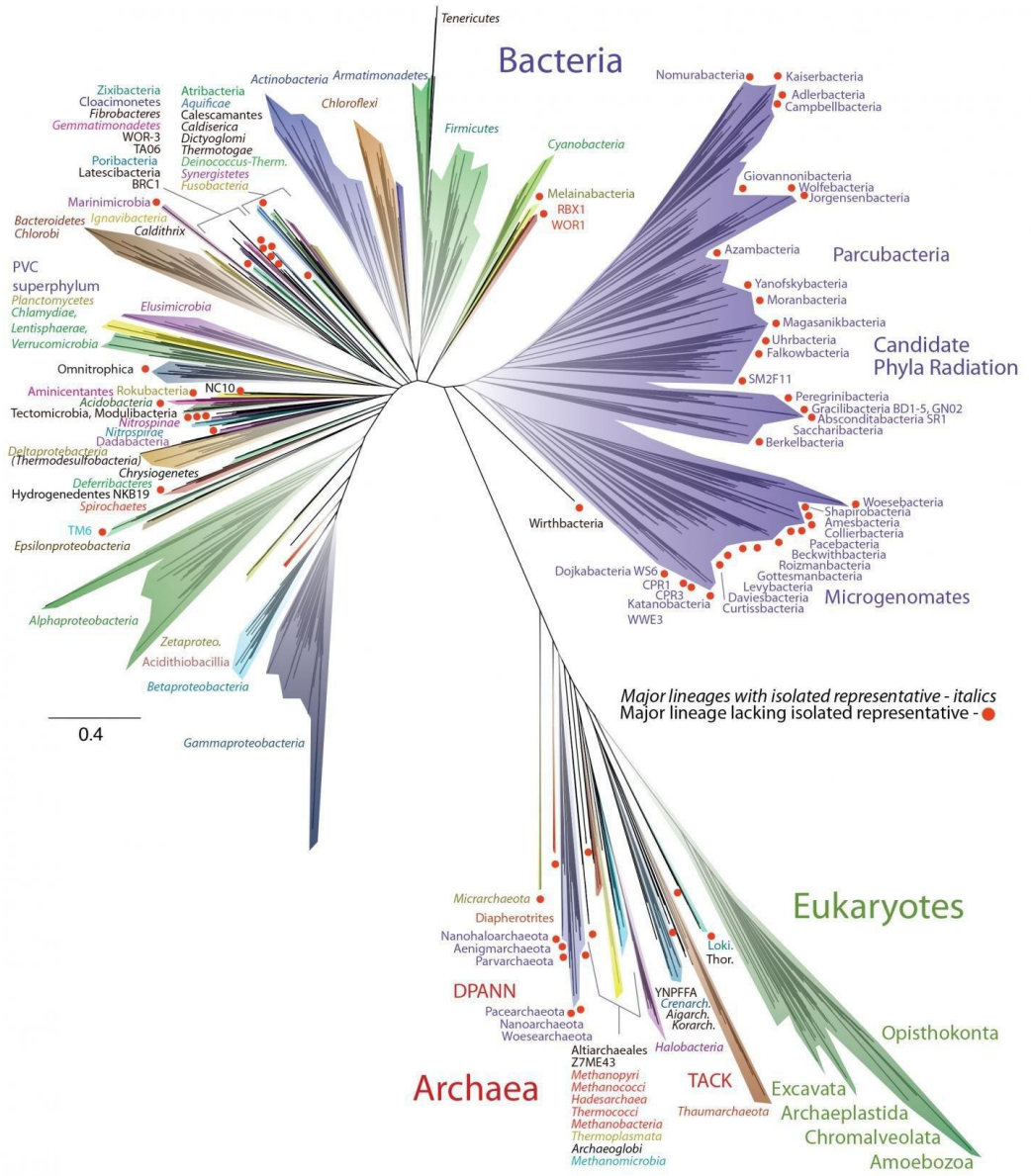
Identify the major fields of science that underly microbiome science

Describe different “omic” data types and what they tell us

We live in a microbial world



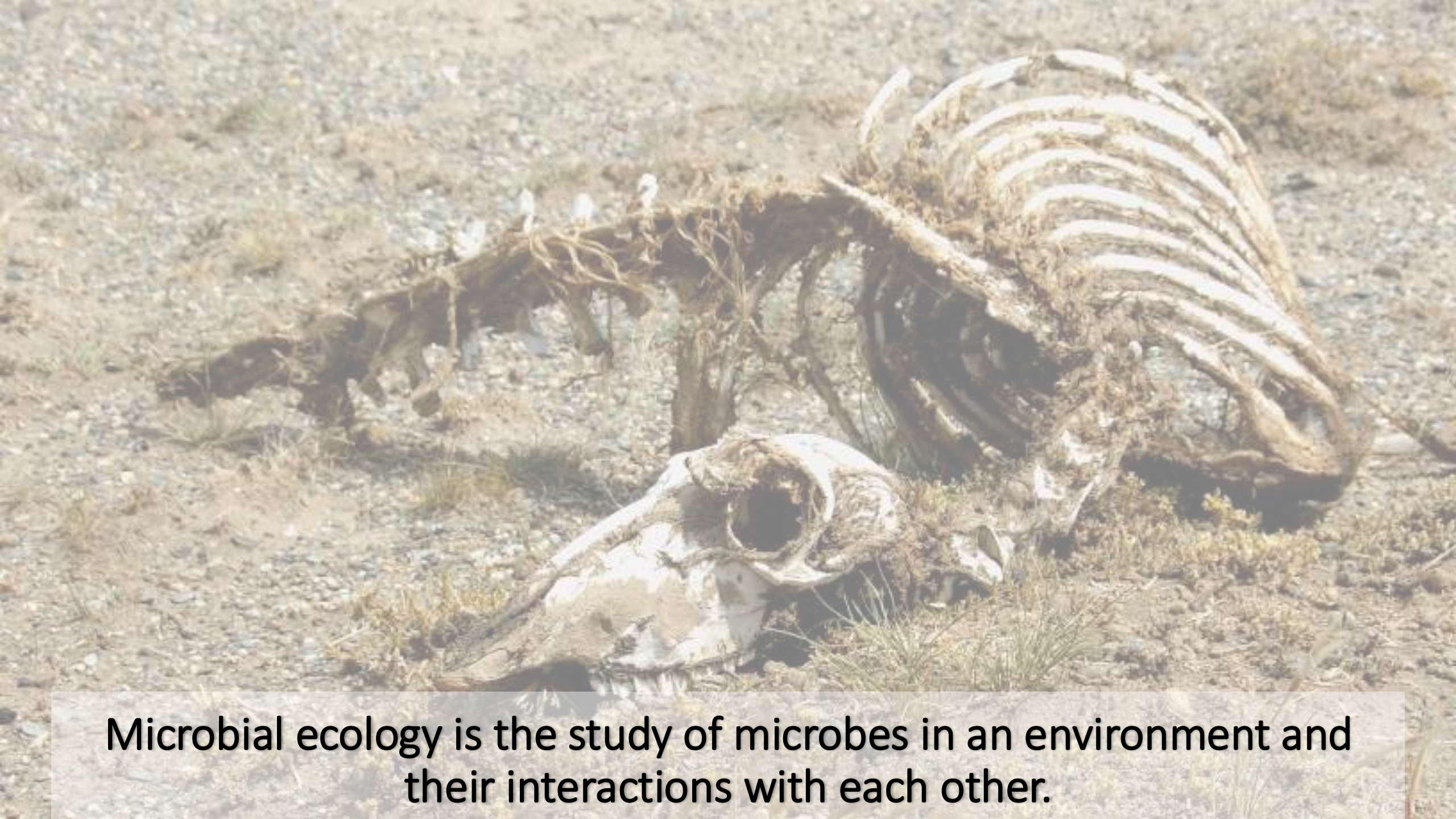
We live in a microbial world



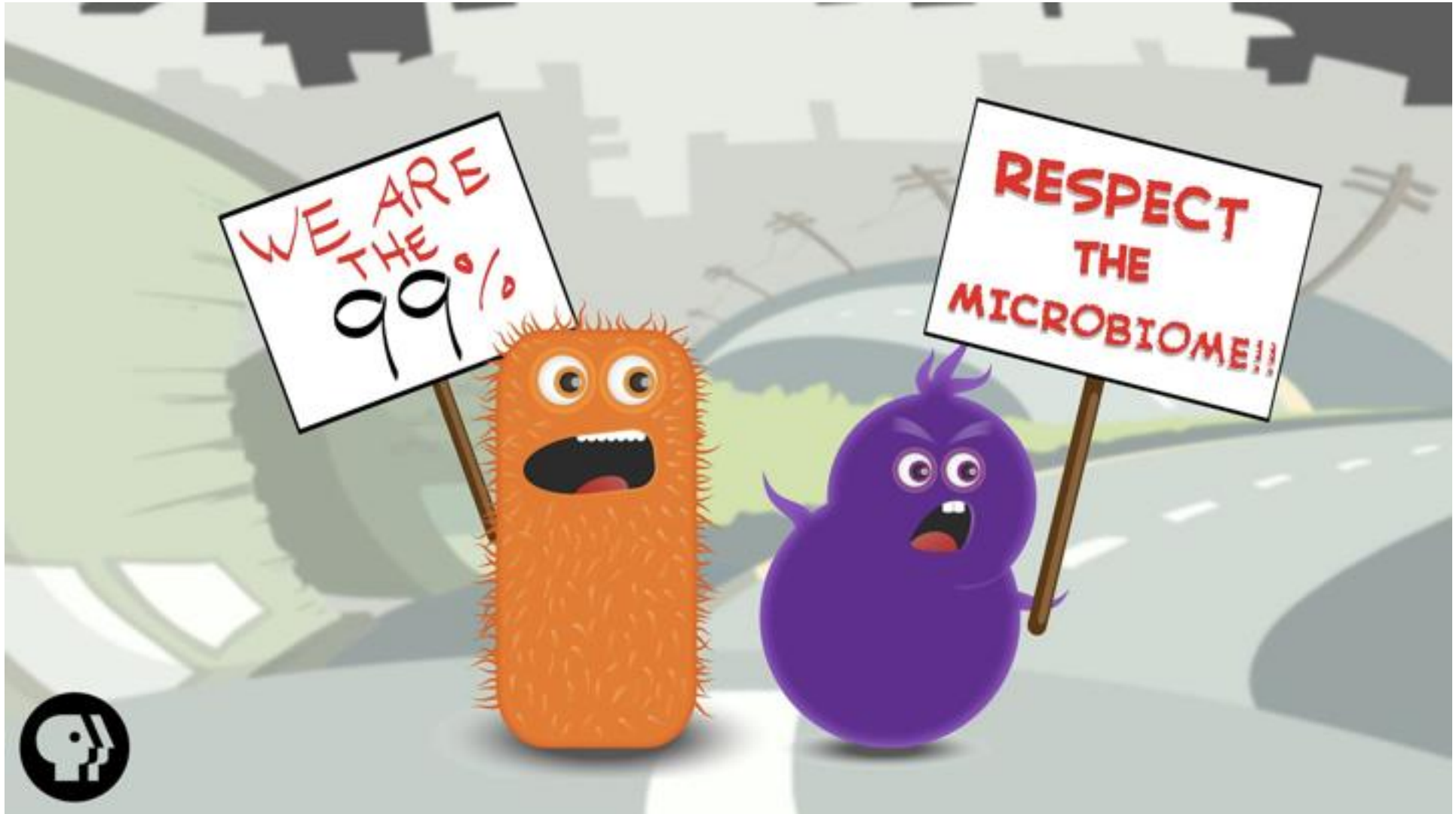
VIRUSES

Microbes live in complex and diverse communities, everywhere on Earth

Photo by Greg Caporaso



Microbial ecology is the study of microbes in an environment and their interactions with each other.


WE ARE THE 99%
RESPECT THE MICROBIOME!!

Microbiome Research

Microbiome – The genes and small molecules of microbes that are interacting in an environment.

MICROBIOME

Microbiology

Ecology

Genomics

Chemistry

We study …

structure,
diversity,
function,
communication

We sample ….

DNA,
RNA,
proteins,
metabolites