

Quarter(s) Proposed: **Fall 2020**

Instructor: **Jack Gilbert**

Secondary Instructor: **Sarah Allard**

Subject Code: SIO 87 Boo

Title of Seminar: **The microbiome in human and environmental health.**

Abbreviated Title: **Microbiome Science**

Course Description: **These lectures will provide a comprehensive introduction to microbiome research, tools and approaches for investigation, and a lexicon for understanding the biological role of microbial communities in the environment and in their hosts.**

TIME: Wednesdays 9am-9:50am October 7th-December 16th (excluding Nov 11th and 25th).

Zoom Meeting

<https://ucsd.zoom.us/j/98239341293?pwd=SnFQeHE1cnNXT3k4aTBaOGpQSXpGOTog> (Links to an external site.)

Meeting ID: 982 3934 1293

Password: 048452

Grading structure:

5 points per quiz (1 quiz per module) = total 30 points

10 points per feedback statement (feedback required weekly) = total 90 points

50 points for final literature review (due by 16th December; MAXIMUM 1000 words, on a topic of your choice related to the 5 modules) = total 50 points.

Oct 7th – Introduction and History of Microbiology – Ecology in Environments and Disease (19th-20th century). Leuwenhoek, Pasteur, Koch, etc. (Prof. Gilbert)

Oct 14th - Tools of the trade – Metagenomics, Metatranscriptomics, Metaproteomics, Metabolomics. Methods lecture. (Dr Marotz)

Oct 21st - Microbiomes in human health and disease: Immune and Cardio Metabolic Diseases. Asthma, Atopic dermatitis, food allergy, obesity, diabetes, atherosclerosis, exercise (Dr Eckl-Mensah)

Oct 28th – Microbiomes in human health and disease: Gut-Brain Axis. Depression, anxiety, behavior, Alzheimer's, Parkinson's, autism (Dr Das)

Nov 4th – Microbiome in human health and disease: The Built Environment. Diversity, forensics, ecological interactions, disease emergence, bugs in space! (Dr Thoemmes)

Nov 18th - Microbiomes in Environmental health: Soil and Agriculture. Soil health, modeling, plant-microbe interactions, probiotics for soil (Prof. Gilbert)

Dec 2nd – Microbiome in Environmental health: Marine and Freshwater Ecosystems and animals (Dr Diner)

Dec 9th – Microbiomes in Food and Drink, Fermentation, food poisoning, etc. (Dr Allard)

Dec 16th – Option to meet if you have any questions about your final paper.

Online Resources:

American Society for Microbiology: <http://www.asm.org> (Links to an external site.)

MicrobeWorld: <http://www.microbeworld.org/index.php> (Links to an external site.)

Small Things Considered: <http://schaechter.asmblog.org/> (Links to an external site.)

GutCheck Coursera Course - <https://www.coursera.org/learn/microbiome>