Course Title: Gut Bacteria in Health and Disease: An Introduction to the Microbes Within

Course Code: BIO 94 W

Instructor: Tobi Schmidt, PhD

Course Summary:
The microbes that live on and in us are collectively known as the microbiota. Studies have demonstrated that the gut microbiota exert a strong influence over our health. In particular, the bacteria residing in our digestive tract can influence a spectrum of diseases. Unhealthy lifestyle, especially a poor diet, are key factors contributing to the types of gut bacteria that promote diseases like obesity, type 2 diabetes, cardiovascular disease, colorectal cancer, depression, and even neurodegenerative diseases like Alzheimer’s and Parkinson’s. Recent discoveries show that gut microbiota can be modulated by lifestyle choices and that healthy and unhealthy populations of bacteria can be predicted based on specific lifestyle patterns. In this course, students will be introduced to the key microbiota that have a profound influence on our health. We will explore how they exert this influence and what lifestyle factors contribute to healthy and unhealthy gut microbiota populations. The course emphasis is on the role of diet in influencing the gut microbiota and our overall health. However, we will also explore other lifestyle factors such as exercise, sleep, and stress, and how they can modulate gut bacteria.

Grade Options and Requirements:
• No Grade Requested (NGR)
  o This is the default option. No work will be required; no credit shall be received; no proof of attendance can be provided.
• Credit/No Credit (CR/NC)
  o Students must participate in at least 80% of weekly discussions and/or Zoom sessions. In addition, all weekly quizzes must be completed.
• Letter Grade (A, B, C, D, No Pass)
  o Students must participate in at least 80% of weekly discussions and/or Zoom sessions, complete all weekly quizzes, and complete a final exam.

*Please Note: If you require proof that you completed a Continuing Studies course for any reason (for example, employer reimbursement), you must choose either the Letter Grade or Credit/No Credit option. Courses taken for NGR will not appear on official transcripts or grade reports.
Tentative Zoom Schedule*:
Live virtual sessions using the Zoom platform will be held on Thursdays from 7-8 PM Pacific Time for each week of the course. In these sessions, the week’s module will be discussed and advanced topics will be introduced. It is an excellent opportunity to engage with the instructor and to ask specific questions. The session is highly recommended but is not required and is recorded for those that cannot attend.

*Please note that the Zoom schedule is subject to change.

Tentative Weekly Outline:
Each week’s module includes an introductory video, select readings, a discussion board, virtual class, and supplemental materials.

Week One - Module One
Introduction to Microbes and the Human Microbiota
  • This week introduces the concept of microbes, the different types and their residence on and within the human body.

Week Two - Module Two
The Human Gut Bacteria
  • This week we explore the role bacteria, specifically, play in the human microbiota with an emphasis on the bacteria in the gut.

Week Three - Module Three
The Gut Bacteria and Health
  • This week we dive deeper into our exploration of the gut bacteria and look at the bacterial metabolic processes and bacterial genetics that promote health.

Week Four - Module Four
The Gut Bacteria and Disease
  • This week we turn our attention to the gut bacteria that increase the risk of disease.

Week Five - Module Five
Beyond Food: Other Factors that Influence the Human Microbiome
  • In our final week, we will discuss factors, other than what we eat, that influence the gut bacteria populations for good and bad.