

Crafting Curriculum  
Exploring the creation of a 300 level biochemistry module  
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ABSTRACT

We are more than we eat, and new research outpaces the textbooks. This project aimed to create a module within a 300 level biochemistry course on nutrition, integrating novel research on the gut microbiota and the interaction between microbes and wellness. Incorporating novel research into undergraduate curricula not only enhances students' engagement and critical thinking skills but also prepares them for future professional challenges. Initially, literature research expanded from the intended textbook to a general understanding of the coevolved diverse and interconnected gut microbiome. The symptom of "leaky gut" was then chosen as a physiological response to a dysbiotic microbiome and a symptom of a wide variety of other health disorders. To explore some of the many signaling pathways correlating to the gut microbiome three peptides were chosen: Neuropeptide Y, Serotonin, and GABA, which are released in response to the presence of lipopolysaccharides or short chain fatty acids. It was observed that the gut microbiome is the predominant producer of short chain fatty acids from dietary fiber, so the three short chain fatty acids were explored. Finally, an overview of the metabolism of the genus *Lactobacillus* was included. With research in hand, a two-hour lecture and a 15-minute summary presentation were recorded in PowerPoint. Students will demonstrate their synthesis and achievement of the learning objectives through completion of a research assignment that is shared within the module. This was an exciting experience to peek behind the curtain of the work that goes into creating classroom content at the undergraduate level.