香港城市大學
City University of Hong Kong

Microbe detectives: Inspiring the next generation biologists with an innovative investigation-based module.

Project Number: 6000587

Principal Investigator: Dr. Yuet Ming CHIN Rebecca

Grant Type: TSG

Abstract:

It has long been recognized that students shall begin their journey of scientific discovery as early as possible, and it is important to provide a more accurate picture of how scientific research is being done. Yet the classical research internship programs are beneficial to the volunteer students and are limited by the resources and availability of participating laboratories. Here I propose an investigation-based laboratory module for the second-year biology majors taking the BMS2001 Medical Microbiology course. In contrast to the traditional laboratory courses where students conduct separate sets of experiments and complete worksheets with the goal of getting the "correct answer", one feature of my proposed module is that neither the instructor nor student knows what the experiment results are, the "real research" thus creates a sense of ownership. Through a series of microbial and molecular biology experiments, the students will act as "microbe detectives", to determine the identity of the microbes found in our daily environment (e.g. buttons on our mobile phones, door handles) and if they carry specific disease-causing toxic genes. Students will also utilize the 3D printers available in the Gateway Education Laboratory to build 3D models of their microbes. The design of the module includes normal research laboratory practices, including the sharing of preliminary data among group members, communicating ideas and findings in oral and written formats, and working in teams to solve problems together.