Functional Genomics – Winter 2016

In Winter Quarter 2016, the Program in Biological Sciences will once again offer an upper level course focused on the characterization and analysis of genomes. Biological Sciences 378 (Genomics) will be taught by Norman Wickett. Norm has significant research experience and expertise in genomics. To facilitate enrollment by students who are interested in Genomics, the PBS will waive some of the prerequisites for this course. Thus, for this year, students who have had either Biological Sciences 210-1 or 215 will be able to enroll.

Genomics is a relatively new and rapidly advancing field of biology concerned with understanding the structure, function, content, and evolution of genomes. At its core, the goal of genomics is to generate a detailed map of an organism's genome that includes the location and identity of every gene. However, the field of genomics is becoming increasingly broad, often focusing on the questions and analyses that arise once a genome has been sequenced and described. The methods developed by the Human Genome Project, both from a sequencing and analysis perspective, significantly altered the landscape of human research, both from a biomedical and from an evolutionary standpoint. Building on these methods and on very recent advances in DNA sequencing technology, genomics is no longer limited to the study of humans; genome research can now being applied to any organism from jellyfish to polar bear, from mold to palm trees. In this genomics course students will discuss how and why genomes are sequenced, how their content is analyzed, and how the understanding of genomes from across the entire tree of life (i.e., comparative genomics) can illuminate fundamental questions in biology.