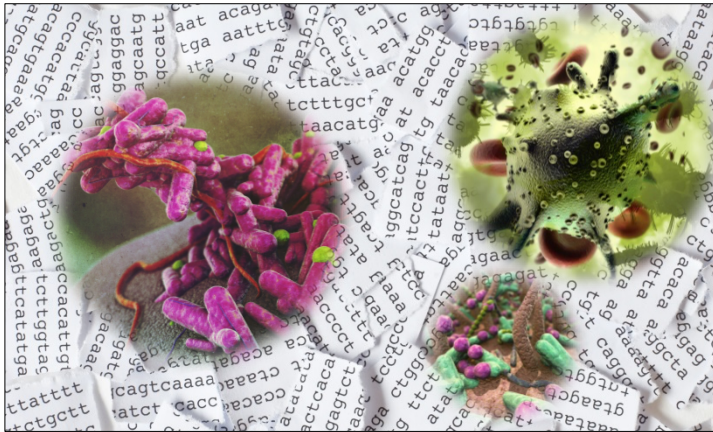




Overview:

- Participants will be introduced to a variety of methods for studying the complex microbial populations that surround us, including applications, limitations, and health and legal implications.
- Students will apply deep sequencing techniques to mine the genetic diversity of complex populations such as the community of microbes growing happily in a kitchen sink.



Lectures:

1. Introduction to metagenomics and microbial communities
2. Exploiting genome sequencing for drug and biotechnology product discovery.
3. Approaches and limitations of metagenomic surveys.
4. Analyzing and visualizing metagenomic data (R and online tools for sequence analysis)

Labs:

1. Isolation of DNA from student-selected microbial community and preparation (Q/C) for next-generation sequencing.
2. Assembly and gene annotation and prediction of sequencing data from microbial community using cloud computing.
3. Geneious software for metagenomic surveys.
4. Use of Mothur for analyzing 16S sequences.
5. Use of QIIME for diversity analyses.