Course Learning Objectives - CBE 235

Fundamentals of Molecular Bioengineering (3)

At the conclusion of this course, the student should be able to:

1. Answer the question "what is molecular biotechnology?"
2. Describe the underlying chemical and biological scientific principles governing cells and biomacromolecules (DNA, RNA, and protein).
3. Describe the requirements in a typical biotechnology process.
4. Solve basic mathematical problems related to DNA separation, DNA ligation, combinatorial library statistics, and prediction of cell densities in batch cultures.
5. Identify key historical milestones in the development of modern molecular biotechnology: determination of chemical nature of heredity, DNA structure, gene cloning.
6. Interpret cutting-edge biotechnologies examples in light of their underlying chemistry: DNA sequencing, DNA synthesis, genetic engineering of microbes.
7. Design primers and for amplifying a given DNA sequence with or without alterations to the sequence.