ON-DEMAND, SHORT CLASS | LEVEL ONE | 85-MINUTES

SUGGESTED PREREQUISITE: NONE

biotechPrimer
Life Science Training From Industry Experts

The Biology of Biotech

OVERVIEW

The Biology of Biotech provides an overview of biotechnology's most important biological molecules and systems to make novel therapies and diagnostics. This online class lays the groundwork for understanding the biopharma industry by focusing on cells, DNA, and proteins and how these are manipulated by researchers to discover new products. This class is the perfect place to start if you are a non-scientist who wants to understand the science driving research and discovery.

Five Takeaways:

1. Knowledge of cell structure and function and how cellular functions are manipulated by scientists to develop new products.
2. Understanding of protein synthesis and how this cellular process is optimized to create therapeutics.
3. Correlation between genetic mutations and disease.
4. Fluency in genetic variation and its role in disease diagnosis and treatment.
5. Exploration of significantly important molecules and their role in health and disease.

AGENDA

The Cell: The Biotech Advantage

- Biotechnology defined
- Types of cells
- Organelle structures and functions
- Industry application: antagonist vs agonist

DNA and Proteins: The Biotech Workhorses

- DNA structure and functions
- Industry application: PCR
- Genomes and genomics
- Gene expression
- Protein synthesis
  - mRNA, tRNA, codons, anticodons
- Post-translational modifications
  - Glycosylation and phosphorylation
- Protein structures and funcitons

Genetic Variation: Understanding Disease

- Normal, abnormal chromosomes
- Alleles and traits
- Mutations: types and causes
  - Single nucleotide polymorphisms (SNPs)
- Genetic basis of disease
- Monogenic and polygenic disease
- Industry application: identifying mutations
- Companion diagnostics
- Precision medicine
  - Dosage, interactions, metabolism, safety