

BioBasics is a two-day course for the non-scientist which highlights science and technology concepts that are the basis of the biotechnology industry. The course is for participants that require a working knowledge of fundamental terms and applications.

Day One

Industry Overview 9:00–9:30

Biotechnology Defined

Industry Sectors:

Healthcare, Agriculture, Industrial, Environmental
Academia

Biology: The Basis of Biotech 9:30–10:30

Biotechnology Goals

Cell Structure & Function

Lab: DNA Isolation & Extraction

Break 10:30–10:45

DNA 10:45–12:30

DNA Structure & Function

Chromosomes & Genes

Activity: Genetics Wheel

Mutations

Genetic Variation

Activity: Genetic Variation Taste Test

Genetic Basis of Disease

Personalized Medicine

Lunch 12:30–1:30

Gene Expression: Proteins 1:30–2:45

DNA to Proteins

Transcription & Translation

Protein Structure & Function

Activity: Protein Synthesis Paper Lab

Proteins in Disease

RNA Interference

Break 2:45–3:00

Genetic Engineering 3:00–4:15

Plasmids

Recombinant DNA

Genetically Engineered Cells

Recombinant Proteins (Biologics)

Disease Models

Q&A/Review 4:15–4:30

Day Two

Genomics 9:00–10:00

Genomics Defined

Tools: PCR, DNA Sequencing, Microarrays

Activity: Determining Drug Metabolism

Antibodies: The Key to Biotech 10:00–11:00

Antibodies Defined

Antibody Production

Antibodies as Research Tools

Antibodies as Diagnostics

Antibodies as Therapeutics

Break 11:00–11:15

Proteomics 11:15–12:30

Proteomic Defined

Tools: Chromatography, Mass Spec, Protein Microarray

Lab: Protein Electrophoresis

Lunch 12:30–1:30

Stem Cells & Regenerative Medicine 1:30–2:15

Stem Cell Properties

Promises & Challenges

Organ & Tissue Replacement

Break 2:15–2:30

Drug Discovery & Development 2:30–3:30

Target Identification & Validation

Therapeutic Options

Regulatory Agencies

Preclinical & Clinical Trials

Biosimilars & Biomanufacturing 3:30–4:15

Biosimilars Defined

Generics vs. Biosimilars

Biosimilars Challenges

Biomanufacturing Overview

Q&A/Review 4:15–4:30