

BIOTECH 42 Bio-Techniques I: Course Modules

Cell Culture & Microscopy	<p>Lecture Topics:</p> <ul style="list-style-type: none"> • Laboratory Safety • Basic Lab Equipment • Microscopes • Bacterial and Mammalian Cell Culture 	<p>Laboratory Exercises:</p> <ul style="list-style-type: none"> • Microscope Use (Compound Light & Phase Contrast) • Preparing Buffers and Media • Cell Culture Maintenance • Counting Cells
Nucleic Acids	<p>Lecture Topics:</p> <ul style="list-style-type: none"> • Recombinant Molecules • DNA (Genomic, Plasmid, Complementary) • Restriction Enzymology • Polymerase Chain Reaction (PCR) 	<p>Laboratory Exercises:</p> <ul style="list-style-type: none"> • DNA and RNA Isolation and Purification • Nucleic Acid Quantification • PCR (Conventional and qRT-PCR) • Bacterial Transformation
Immunology	<p>Lecture Topics:</p> <ul style="list-style-type: none"> • Immune Cells and Antibodies • Immunohistochemistry • Probe labelling & Blotting • Hybridization and Detection 	<p>Laboratory Exercises:</p> <ul style="list-style-type: none"> • Protein Quantification • SDS-PAGE • Western blot
Genetic Engineering & Bioinformatics	<p>Lecture Topics:</p> <ul style="list-style-type: none"> • Protein Informatics • Transgenic Technology • Stem Cells • Special Topics in Biotechnology 	<p>Laboratory Exercises:</p> <ul style="list-style-type: none"> • Microarray Analysis • BLAST Searches • ENTREZ Databases