

BIOT M01: INTRODUCTION TO BIOTECHNOLOGY

<u>Lecture Topic</u>	<u>Laboratory Activity</u>
Introduction Overview of Moorpark Program	Lab Set-up Purchasing
Biotechnology Current Industry, Employment	Mathematics Review
Intro to GLP/GMP Quality Systems	Manufacturing Exercise Product Specifications
Documentation	SOP/Batch Record Development
Laboratory Measurement Safety	Measurement: Weight, Vol, Temp
Solutions	Solutions
Solutions	Solutions
Buffers	Buffers and pH
Biological Macromolecules	Dilutions
Centrifugation	Centrifugation
Spectrophotometry	Absorption Spectrum Standard Curves
Molecular Biology	Aseptic Technique Bacterial Culture Techniques
Molecular Biology	Bacterial Culture Mid-log suspension
Molecular Biology	DNA-Restriction Analysis
Recombinant DNA	Effects of DNA Methylation
Recombinant DNA	Plasmid Mini-preps
Recombinant DNA	Recombination of Plasmids

Expression Systems	Transformation of <i>E. coli</i>
Applications of DNA Science	Replica plating of <i>E. coli</i>
Applications of DNA	Purification/Identification of Recombinant DNA
DNA Sequencing	DNA Sequencing Exercise
Immunochemistry	ELISA
Protein Isolation/Purification	Protein: Extraction
Facilities/Utilities	Gel Filtration Chromatography
Quality Control: Environmental Monitoring	Protein Concentration Assay
Validation	Protein Activity Assay
Process Support	Affinity Chromatography
Cell Culture	SDS-PAGE
Purification	Western
Formulation/Fill/Lyophilization/Packaging	Project Presentations
Quality Control: Product Release FDA Overview/Inspection	Project Presentations

REQUIRED TEXTBOOKS:

DNA Science, D. A. Micklos and R. A. Freyer. CSH Laboratory Press, 1990
Basic Laboratory Methods for Biotechnology, L. A. Seidman and C.J. Moore, Prentice Hall.