BSC 2426C
Biotechnology Methods I

BSC 2426C Biotechnology Methods I (4) (A.S.) Prerequisites: successful completion of BSC 2420C or BSC2427C. This course introduces students to modern concepts of molecular biology with a laboratory focus on basic methods for preparing and analyzing nucleic acids. Emphasis is on techniques required for RNA purification and manipulation. Additional special fee required.

Course Performance Standards:

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

1. Demonstrate an understanding of the scientific method
2. Demonstrate an understanding of scientific modeling such as formulas; graphs, tables and schematic drawings.
3. Perform RNA extraction and purification.
4. Quantitate RNA and determine its purity.
5. Perform electrophoretic analysis of RNA molecules.
6. Illustrate several methods for RNA detection (e.g. hybridization to a nucleic acid probe or affinity chromatography).
7. Explain the laboratory methods and procedures typically required to work with RNA and demonstrate the ability utilize these methods in a laboratory setting.
8. Describe hybridization based detection methods in the context of RNA analysis.
9. Describe reverse transcriptase polymerase chain reaction (RT-PCR or Q-PCR) methodology and interpret data from RT-PCR experiments.
10. Explain the differences between protocol and procedure and the role of standard operating procedures in a laboratory setting operating under a quality system (e.g. GMP, GLP, ISO/IEC).
11. List the types of RNA found in a typical cell.
12. Describe the process of RNA transcription.
13. Demonstrate an understanding of regulation of gene expression at the level of transcription.
14. Maintain appropriate documentation of experimental work.
15. Perform standard laboratory procedures in a safe and efficient manner.

Original Submittal Date: October 2010
Date of Last Review: September 2012
Date of Last Revision: October 2012