# BACHELOR OF SCIENCE
## BIOTECHNOLOGY

### FIRST TIME/FULL TIME FRESHMEN
2014-2015

| Student's Name: __________________________ |
| Entrance Date: __________________________ |

### DEPARTMENT MAJOR REQUIREMENTS
50

**Required:**
- BIOL 211 Human Biology 3
- BIOL 216 Intro to Microbiology 4
- BIOL 222 Intro to Genetics 4
- BIOL 350 Molecular/Cellular Biology 4
- BMGT 101 Intro to Business 3
- BTEC 300 Receptors, Signaling Pathways & Cell Control Mechanisms 3
- BTEC 310 Emerging Life Sciences Tech 3
- BTEC 350 Genomics & Proteomics 3
- BTEC 400 Modeling of Biological Systems 3
- BTEC 410 Biotechnology Lab I 2
- BTEC 420 Biotechnology Lab II 3
- BTEC 450 Drug Discovery & Development 3
- CHEM 221 Organic Chemistry 3
- CHEM 222 Organic/Biochemistry 3
- CHEM 223 Organic Chemistry Lab 2
- CMPS 322 Introduction to Programming 4

### DEPARTMENT GENERAL REQUIREMENTS
25

| BIOL 101 General Biology I 3 |
| BIOL 102 General Biology II 3 |
| BIOL 103 General Biology Lab I 1 |
| BIOL 104 General Biology Lab II 1 |
| CHEM 103 General Chemistry Lab I 1 |
| CHEM 104 General Chemistry Lab II 1 |
| MATH 175 Elementary Statistics 3 |
| MATH 190 Calculus I 4 |
| PHYS 101 Physics I 3 |
| PHYS 102 Physics II 3 |
| PHYS 103 Physics Lab I 1 |
| PHYS 104 Physics Lab II 1 |

### GENERAL ELECTIVES
6

| __ __ __ | __________________________ |

### MINIMUM CREDITS FOR B.S. DEGREE
123
Program Objectives

B.S. in Biotechnology

Upon successful completion of this program, a student will be able to:

1. Gain an understanding and appreciation of the complexity of biological pathways that are fundamental to living organisms.
   a. Identify signaling cascades that allow cells to respond appropriately to changes in their environment.
   b. Understand the role of enzymes and how their structure is related to their function.
   c. Learn how genes work and understand the concepts underlying gene technology.
   d. Gain an understanding of the organization of the cell.
2. Gain hands on experience with key scientific principles through laboratory exercises.
   a. Describe the significance of the experimental application and apply the information to the model tested.
   b. Collect and track data through the course of an experiment, using accurate conversions and units.
   c. Report laboratory results in a comprehensive summary of significance, methods, results, and conclusions.
   d. Draw conclusions accurately based on the results of experimental data.
3. Learn to speak fluently in the scientific languages of Information Technology
   a. Convert conceptual problems to a format that binary logic can be applied to solve.
   b. Communicate the results of computer-based queries orally with the aid of computer-generated graphics.
   c. Utilize software to analyze scientific data, generate statistics, and generate graphs.
   d. Operate on biological information stored in databases to answer experimental questions.
4. Develop entrepreneurial skills that will promote the goals of a Biotechnology company/industry.
   a. Identify needs that can be met with a Biotechnology solution.
   b. Balance the cost of a project with the potential gain to be realized.
   c. Develop communication skills that promote interaction with professionals from a wide variety of backgrounds, including engineers, computer science, business, in addition to scientists.
   d. Establish goals and describe concrete steps for recording progress, documenting obstacles, and reporting the outcome.