

BACHELOR OF SCIENCE CAPSTONE PROGRAM BIOTECHNOLOGY

2011-2012

Associate Degree in _____

Student's Name _____

From _____

Entrance Date _____

This program is for graduates of community colleges or other institutions who have received associate degrees in science or related fields.

DEPARTMENT MAJOR REQUIREMENTS 30

Required:

PREREQUISITES TO THE PROGRAM 24

___	ENGL	150	English Composition I	3
___	ENGL	151	English Composition II	3
___	CMPS	___	_____	3
			(100 Level)	
___	MATH	175	Elementary Statistics	3
___	BIOL	___	_____	3
			(100 Level)	
___	BIOL	___	_____	3
			(100 Level)	
___	CHEM	___	_____	3
			(100 Level)	
___	CHEM	___	_____	3
			(100 Level)	

___	BMGT	101	Intro to Business	3
___	BIOL	350	Molecular/Cellular Biology	4
___	BTEC	300	Receptors, Signaling Pathways & Cell Control Mechanisms	3
___	BTEC	310	Emerging Life Sciences Tech	3
___	BTEC	350	Genomics & Proteomics	3
___	BTEC	400	Animal Modeling of Disease	3
___	BTEC	410	Biotechnology Lab I	2
___	BTEC	420	Biotechnology Lab II	3
___	BTEC	450	Drug Discovery & Development	3
___	CMPS	204	C Programming for Science & Technology	3

ADDITIONAL CREDITS FROM A.S. DEGREE 36

DEPARTMENT GENERAL REQUIREMENTS 32

Natural Sciences

___	BIOL	216	Intro to Microbiology	4
___	BIOL	222	Intro to Genetics	4
___	CHEM	221	Organic Chemistry	3
___	CHEM	222	Organic/Biochemistry	3

Directed General Electives

___	___	___	_____	3
___	___	___	_____	3
___	___	___	_____	3
___	___	___	_____	3
___	___	___	_____	3
___	___	___	_____	3

Program Objectives

B.S. Capstone Program 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.