

Mission, Goals and Student Learning Outcomes: AY 2018-2019

Please upload the form for each program in Blackboard by **September 25, 2018**.

School	School of Arts and Sciences
Department	Biology
Program	Biotechnology BS
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I. State Program Mission

Biotechnology at York College is an interdisciplinary program designed to provide students with strong academic training in sciences and math with an emphasis on applied research and variety of laboratory experiences. This program promotes the

development of critical and creative thinking and fosters collaboration and ethical values. Students receive strong foundations in biotechnology, genetics, cell and molecular biology and biochemistry while acquiring essential laboratory skills and learning research design and methods. They are also offered a chance to participate in independent research projects in research laboratories, familiarize with research technology and collaborative work and become leaders who will have a great impact in the global scientific community. These activities provide students with meaningful experiences which should enhance their future careers in a variety of laboratory settings including Biomedical, Pharmaceutical, Chemical, Agricultural and Food Industries. This program offers an excellent preparation for advanced careers in research (M.S. and Ph.D.) in various fields and provides a strong background for entry into medical, dental or pharmacy schools.

II. List Program Goals (PGs) and Program Level Student Learning Outcomes (PSLOs)

Program Goal	Program Student Learning Outcomes
Goal 1 Students will recognize fundamental principles of biology by applying concepts from multiple disciplines including chemistry and physics.	Outcome 1.1 Students will be able to define general biological and chemical principals and apply them to different biological systems, from microorganisms to animals and plants.
	Outcome 1.2 Students will be able to identify core concepts in molecular genetics, cell biology, and physiology and recognize their use in biotechnology.
	Outcome 1.3 Students will be able to synthesize material from basic sciences and math and apply their knowledge to explain the reasons underlying the outcome of a biological process.
	Outcome 1.4 Students will describe the scientific processes and techniques as they apply to biotechnology.
	Outcome 1.5 Students will be able to analyze data regarding a biological model to evaluate the plausibility of the model.

Program Goal	Program Student Learning Outcomes
<p>Goal 2 Students recognize and are able to apply the scientific method.</p>	<p>Outcome 2.1 Students will be able to articulate their hypothesis or question.</p>
	<p>Outcome 2.2 Students will be able to make reasonable predictions based on a hypothesis or model.</p>
	<p>Outcome 2.3 Students will be able to explain and/or propose an experiment with appropriate controls to test a hypothesis or model.</p>
	<p>Outcome 2.4. Students will be able to relate the results of an experiment to their hypothesis and prediction.</p>
<p>Goal 3 Students have basic technical laboratory skills to collect data and the ability to analyze data using appropriate statistical methods where required.</p>	<p>Outcome 3.1 Students will have the ability to apply basic technical laboratory skills to perform experiments.</p>
	<p>Outcome 3.2 Students will be able to use appropriate common statistical methods to analyze data, including measures of significance.</p>
	<p>Outcome 3.3. Students will be able to use common methods of presenting data, such as graphs or data tables, and interpret them.</p>
	<p>Outcome 3.4. Students will apply knowledge of significant experimental techniques, with an emphasis on the techniques of genetic engineering.</p>
<p>Goal 4 Students are able to communicate ideas and data in writing, including in standard scientific format.</p>	<p>Outcome 4.1 Students will be able to describe an experiment or experiments using the standard structure of a research article.</p>

Program Goal	Program Student Learning Outcomes
	Outcome 4.2 Students will be able to explain and apply scientific terminology.
	Outcome 4.3 Students will be able to identify reliable sources of information.
	Outcome 4.4 Students will be able to analyze, interpret and present methodology and results from primary literature.