

## College of Arts and Sciences: Science Outcomes

Communication	Information Mgt/ Quantitative Skills	Valuing/Ethics/ Integrity	Critical Thinking	Content Knowledge	Application/ Internship
<b>Biochemistry &amp; Biotechnology BS</b>					
Effectively communicate, both orally and in written form, relevant topics to other professionals as well as to the public.	Search for and retrieve information from the scientific literature and databases.		Develop good problem-solving skills, particularly with respect to data analysis and interpretation.	Demonstrate a solid foundation in chemistry and biology, as well as in-depth knowledge of the rapidly-advancing fields of biochemistry and biotechnology.	Perform and evaluate laboratory work proficiently.
Read the scientific literature with good comprehension.					
<b>Biology BA/BS</b>					
Effectively communicate, both orally and in written form, relevant topics to other professionals as well as to the public.	Search for and retrieve information from the scientific literature and databases.		Develop good problem-solving skills, particularly with respect to data analysis and interpretation.	Demonstrate a solid foundation in chemistry and biology, as well as in-depth knowledge of the rapidly-advancing fields of biochemistry and biotechnology.	Perform and evaluate laboratory work proficiently.
Read the scientific literature with good comprehension.					
<b>Chemistry BS with Emphasis in Biochemistry</b>					
Communicate scientific ideas clearly both orally and in written form. This includes the effective presentation of quantitative data and of scientific concepts or procedures using diagrams and/or figures.	Carry out statistical and linear regression analysis of data.		Understand valid scientific approaches to problem-solving and be able to design experiments to test a hypothesis.	Have a foundation of knowledge in chemistry and in biochemistry as outlined by the American Chemical Society Committee on Professional Training in their guide to <i>Undergraduate Professional Education in Chemistry</i> . This guide also describes the expectations around which our biochemistry option within the B.S. degree program was developed.	
	Search for and retrieve information from scientific journals, databases, and handbooks, especially those widely used by professional chemists.		Draw valid conclusions from experimental data and observations.	Graduates choosing the biochemistry option also acquire some basic knowledge of biology.	

	Use proficiently the software widely used by practicing scientists, including word processors, scientific plotting and analysis software, spreadsheets, data acquisition software interfaced to commercial instruments, and simulation software.		Evaluate the main possible sources of error in laboratory measurements.	In order to achieve the goals of any one of our chemistry degrees, knowledge is required from the related areas of introductory physics and calculus.	
<b>Chemistry BA</b>					
Communicate scientific ideas clearly both orally and in written form. This includes the effective presentation of quantitative data and of scientific concepts or procedures using diagrams and/or figures.	Carry out statistical and linear regression analysis of data.		Understand valid scientific approaches to problem-solving and be able to design experiments to test a hypothesis.	Demonstrate a foundation of knowledge in chemistry suitable for the pursuit of further study in the discipline. In order to achieve the goals of any one of our chemistry degrees, knowledge is required from the related areas of introductory physics and calculus.	Carry out the basic techniques of preparative and analytical chemistry. An appreciation some aspects of chemical spectroscopy should be achieved.
	Search for and retrieve information from scientific journals, databases, and handbooks, especially those widely used by professional chemists.				Keep accurate records of experiments.
	Use proficiently the software widely used by practicing scientists, including word processors, scientific plotting and analysis software, spreadsheets, data acquisition software interfaced to commercial instruments, and simulation software.				Work effectively in the laboratory individually or as part of a small team.

<b>Chemistry BS</b>					
Communicate scientific ideas clearly both orally and in written form. This includes the effective presentation of quantitative data and of scientific concepts or procedures using diagrams and/or figures.	Carry out statistical and linear regression analysis of data.		Understand valid scientific approaches to problem-solving and be able to design experiments to test a hypothesis.	Demonstrate a foundation of knowledge in chemistry as outlined by the American Chemical Society Committee on Professional Training in the guide to <i>Undergraduate Professional Education in Chemistry</i> . In order to achieve the goals of any one of our chemistry degrees, knowledge is required from the related areas of introductory physics and calculus.	Carry out the basic techniques of preparative and analytical chemistry. An appreciation some aspects of chemical spectroscopy should be achieved.
	Search for and retrieve information from scientific journals, databases, and handbooks, especially those widely used by professional chemists.				
	Use proficiently the software widely used by practicing scientists, including word processors, scientific plotting and analysis software, spreadsheets, data acquisition software interfaced to commercial instruments, and simulation software.		Draw valid conclusions from experimental data and observations. Graduates should be able to carry out statistical and linear regression analysis of data. Graduates should be able to evaluate the main possible sources of error in laboratory measurements.		B.S. degree graduates should have developed an appreciation of the application of advanced/specialized instrumentation to solving chemical problems.
<b>Computer Science BS</b>					
	Learn the fundamentals of the supporting areas of mathematics and statistics including the application of discrete mathematics to modeling in computer science. Understand the principles and methods of analyzing algorithms and of algorithm design techniques.			Learn current, best programming practices and paradigms and have a working knowledge of programming in high-level programming languages that follow the paradigms.	Work effectively in the laboratory individually or as part of a small team.

				Knowledge of theory behind the applications such as databases and networks.	
				Knowledge of hardware and its interaction with software, leading to better and optimal programming practices.	
				Knowledge of software development with emphasis on the use of available technologies from system software, including operating systems and compilers.	
<b>Mathematics BA BS</b>					
Understand mathematical reasoning and communicate ideas coherently.	Learn symbolic manipulation, model building, problem solving, statistical techniques, proficiency in use of computers to solve problems, awareness of limitations of technology.	Develop persistence in seeking answers.	Develop proficiency as a critical thinker, ask the right questions from known results, and use mathematical resources to solve problems.	Exhibit proficiency in number systems, calculus and analysis, linear and abstract algebra and basic statistics.	
Write proofs of mathematical statements.				Be exposed to applications of mathematics in other disciplines, typically through math and statistics courses but also related area courses.	
<b>Physics and Astronomy BA BS</b>					
Writing scientific papers or reports.	Mathematical and problem-solving skills needed to solve basic physics problems.		Analyzing and interpreting scientific data.	Understand basic concepts of physics.	Experimental skills in physics, astrophysics, or biophysics.