

Biology Student Outcomes

Content Goals	Learning Objectives	Core course						
		Biol 204 Evolution & Ecology	Biol 205 Cell & Molecular Biology	Biol 206 Organismal Biology	Biol 321/322 Genetics	Biol 323/324 Cell & Molecular	Biol 325/326 Ecology	Biol 432 Evolution
<p>1. Our students will understand and apply fundamental biological principles from the major areas of biology (ecology, genetics, evolution, cell and molecular biology, and organismal biology).</p>	<p>Students will be able to explain and apply their understanding of:</p>							
	the molecular basis for the form and function of cells		X			X		
	the form and physiological function of multicellular organisms (plants and animals)			X				
	the organization and transfer of genetic information		X		X			
	the principles of evolutionary biology and the phylogenetic relationships of the major groups of organisms.	X		X				X
	the ecological relationships between organisms and their environment.	X			X			X
<p>2. Our students will acquire in-depth knowledge from the major areas of biology and be able to integrate principles from these areas.</p>	<p>Students will be able to explain and apply their understanding of:</p>							
	the relationship between structure and function at all levels: molecular, cellular, and organismal.				X	X	X	

	the importance of evolutionary theory as a unifying principle of biology.				X	X	X	X
	the cellular basis for physiological processes					X		
	cellular basis for developmental processes					X		
	interactions between organisms and their abiotic and biotic environment						X	
<i>3. Our students will acquire laboratory and field skills necessary to answer biological questions.</i>	Students will be able to:							
	perform a variety of lab techniques	X	X	X	X	X	X	
	perform a variety of field techniques	X					X	
	identify organisms based on common and distinguishing traits	X		X			X	
	design a biological study and statistically analyze data	X	X	X	X	X	X	

Process Goals	Learning Objectives	Core course						
		Biol 204 Evolution & Ecology	Biol 205 Cell & Molecular Biology	Biol 206 Organismal Biology	Biol 321/322 Genetics	Biol 323/324 Cell & Molecular	Biol 325/326 Ecology	Biol 432 Evolution
<i>1. Our students will develop enhanced critical thinking skills.</i>	Students will be able to:							
	identify questions that can be addressed scientifically	X	X	X	X	X	X	X
	interpret data and draw conclusions from experiments	X	X	X	X	X	X	X

	demonstrate the ability to read, understand and critically review scientific papers.	O		O	X	X	X	X
2. Our students will develop effective quantitative reasoning skills.	Students will be able to:							
	use mathematical equations to represent and explain biological phenomena	X	X	X	X	X	X	X
	use mathematical equations and models to predict biological outcomes	O			X		X	X
3. Our students will communicate precisely and analytically in written and oral forms.	Students will be able to:							
	discuss biological processes using precise scientific terminology	X	X	X	X	X	X	X
	prepare written and/or oral reports in standard scientific formats.	O	O	O	X	X	X	
4. Our students will engage independently and collaboratively in the scientific process.	Students will be able to:							
	apply the scientific process, including designing and conducting experiments and examining hypotheses.	O	X	O	X	X	X	
	acquire the laboratory and/or field skills necessary to perform laboratory exercises and experiments.	X	X	X	X	X	X	
	place their research in a broader scientific context based on current literature	O			X	X	X	
	evaluate the work of their peers					X	X	X

O – skills are introduced in the course

X – skills are reinforced in the course