



B.S. Degree in Biochemistry and Biotechnology Emphasis in Cellular and Molecular Sciences

The following is a sample schedule to help students plan their coursework. These are suggestions and the schedule is flexible. In addition to fulfilling the courses specifically required for this degree, it is important that students also fulfill Dragon Core requirements and normal graduation requirements (at least 120 total credits, at least 40 upper/division credits [300/400 level], and a GPA of at least 2.0.)

FALL				FRESHMAN YEAR				DC	
BIOL	115	Organismal Biology (lab)	4						
CHEM	150	Gen Chem I (lab)	4	4L					
ENGL	101	English Composition ¹	3		1B				
MATH	142	Precalculus ²	4	3					
HLTH	122	Personal Health/Wellness	1						
Total Credits			16						

SPRING				DC	
BIOL	111	Cell Biology (lab)	4		
CHEM	210	Gen Chem II (lab)	4		
CMST	100	Speech Communication ¹	3	1A	
			Dragon Core (2)	3	2
			Dragon Core (3, 5, 6, or 7) ⁴	3	Y
Total Credits			17		

FALL				SOPHOMORE YEAR			
BIOL	341	Genetics (lab)	4				
CHEM	350	Organic Chem I	3				
CHEM	355	Organic Chem Lab I	1				
MATH	261	Calculus I ²	4	3			
PHYS	200	Physics I ⁵ (lab)	4	4L			
Total Credits			16				

SPRING			
BIOL	385	Molecular Biology (lab)	4
CHEM	360	Organic Chem II	3
CHEM	365	Organic Chem Lab II	1
MATH	244/	Applied Biostatistics	4
			262
			Or Calculus II
PHYS	201	Physics II ⁵ (lab)	4
Total Credits			16

FALL				JUNIOR YEAR			
BIOL		Elective in Bioscience ⁶	3/4				
BIOL		Elective in Bioscience ⁶	3/4				
CHEM	400	Biochemistry I	3				
CHEM	405	Biochemistry I Lab	1				
			Dragon Core (3, 5, 6, or 7)	3	Y		
			Dragon Core (3, 5, 6, or 7)	3	Y		
Total Credits			≥16				

SPRING					
BIOL		Elective in Bioscience ⁶	3/4		
CHEM	410	Biochemistry II	3		
CHEM	415	Biochemistry II Lab	1		
CHEM	380	Analytical Chemistry	4		
			Dragon Core (3, 5, 6, or 7)	3	Y
Total Credits			≥14		

FALL				SENIOR YEAR			
BCBT	475	Biotechniques I	2				
BCBT		Biotechniques Block	2				
BCBT		Biotechniques Block	2				
BCBT	450	Mol & Biophys Chemistry	3				
BIOL		Elective in Bioscience ⁶	3/4				
			or	Dragon Core (8, 9, or 10)	3	Y	
Total Credits			≥15				

SPRING					
BCBT	476	Biotechniques II	2		
BCBT		Biotechniques Block	2		
BIOL		Elective in Bioscience ⁶	3/4		
			Dragon Core (8, 9, or 10)	3	T
			Dragon Core (8, 9, or 10)	3	Y
			or	Dragon Core (8, 9, or 10)	3
Total Credits			≥13		

¹ These are standard Dragon Core courses, but others can be taken in their place.

² ACS math scores or a mathematics placement exam is needed to inform whether a student should begin directly in calculus, precalculus or a different math class. Math 142 can only be taken by students with an ACT Math Sub Score of 24 or above.

³ Math 244, Applied Biostatistics, satisfies the statistics requirement for Dragon Core, Calculus II does not. However, only two math courses can be used toward Dragon Core (even if MATH 142, 261, and either 262 or 244 are all taken).

⁴ English Composition II (ENGL 201) is strongly recommended.

⁵ Physics 160/161 can be taken instead of Physics 200/201. Physics 200/201 is calculus-based.

⁶ At least one of the Bioscience electives must be a Physiology course (BIOL 347, 349, or 360).



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Curriculum Planning

Dragon Core Checksheet			
Foundation Four			
		Grade	Credits W?
1A	Oral Communication	_____	
1B	Written Communication (W)	_____	3 X
	English 102	_____	
2	Critical Thinking	_____	
3	Mathematics/Symbolic	_____	3/4
	MATH 102 or 142	_____	
Inner Cluster Electives & Middle Cluster – Competency Areas 3-7, seven courses total			
		Grade	Credits W?
3	Mathematical/Symbolic Systems (optional)		
3I or 3M	Calculus I	_____	4
4	Natural Sciences (One Lab Class Required)		
4I or 4M	CHEM 150 & Lab	_____	4
4I or 4M	Physics (160 or 20)	_____	4
5	History and the Social Sciences		
5I or 5M		_____	
5I or 5M		_____	
6	Humanities		
6I or 6M		_____	
6I or 6M		_____	
7	Human Diversity		
7I or 7M		_____	
7I or 7M		_____	
Outer Cluster – Competency Areas 8-10, three courses total			
		Grade	Credits W?
8	Global Perspective	_____	
9	Ethical and Civic Responsibility	_____	
10	People and the Environment	_____	
Total Dragon Core Credits:			
(Minimum 14 courses and 42 credits)			
Writing Intensive Requirements			
W 1 (1B)		ENGL 102	_____
W 2 (MC or OC)		BIOL 341	_____
W 3 (MC or OC, 300-400 level)		BIOL 405	_____
W 4 (Major, 300-400 level)		BCBT 475	_____
W 5 (any W 200-400 level, MC/OC)		_____	_____

		When Offered	Credits	Grade
Requirements				
BIOL 111	Cell Biology	S	4	
BIOL 115	Organismal Biology	F	4	
BIOL 341	Genetics	F	4	
BIOL 385	Molecular Biology	S	3	
BIOL 385L	Molecular Lab	S	1	
BIOL 450	Mol. & Biophysical	F	4	
CHEM 150/150L	General Chemistry I	F/Sp/Sum	4	
CHEM 210/210L	General Chemistry II	F/Sum	4	
CHEM 350	Organic Chem I	F	3	
CHEM 355	Organic Chem Lab I	F	1	
CHEM 360	Organic Chem II	Sp	3	
CHEM 365	Organic Chem Lab II	Sp	4	
CHEM 380	Analytical Chem	Sp	4	
CHEM 400	Biochemistry I	F	3	
CHEM 405	Biochemistry Lab I	F	1	
CHEM 410	Biochemistry II	Sp	3	
CHEM 415	Biochemistry Lab II	Sp	1	
BCBT 475	Biotechnology I	Sp	2	
BCBT 476	Biotechnology II	F	2	
MATH 261	Calculus I	F/Sp	4	
Restricted Electives				
BIOL	One Physiology Elective from: 349, 347, or 360		4	
BCBT	Three Biotechnology Blocks from 477-483		3 x 2	
BIOL ≥300	Three Bioscience Electives from: 323, 305, 321, 345, 347, 348, 349, 350, 360, 365, 372, 402, 430, 455		≥9	
MATH	Calculus II (262) or Biostatistics (244)		4	
PHYS	General Physics (160/161) or College Physics (200/201)		8	