

Molecular Biology & Bioinformatics

College of Natural and Health Sciences

Credit Hours: 120 hours minimum Total - 80-82 credits for Major

Declaring the Major: New students with a minimum ACT score of 25 may submit a Plan Declaration form. Continuing students must complete BIOS 260 and attain a 2.75 GPA prior to submitting a Plan Declaration form.

Concentrations: None



First Year

Semester 1

Course	Credits	Course Notes	Category	Major GPA	Fall	Winter	Spring	Summer	Min. Grade	Grade	Complete
BIOS 101 - Bioscience (NS)	4	Prereq: MATH 111 or concurrent enrollment and ENGL 100 or higher	MJ/GE	●	●		●	●			
CHEM 101 - General Chemistry I (NS)	5	Prereq: MATH 111 or higher or concurrent enrollment and a "C" or better in CHEM 100	MJ/GE	●	●		●				
MATH 221 - Calculus and Analytic Geometry I (NS)	5	Prereq: Placement into MATH 221	MJ/GE	●	●		●				
ENGL 101 - Composition and Reading	3	Reading and Writing Requirement	SK		●		●		C-		

Total Credits: 17

Semester 2

BIOS 102 - Organismal Biology	4	Prereq: MATH 111 or concurrent enrollment and ENGL 100 or higher	MJ	●	●		●				
BIOS 210 - Biostatistics	4	Prereq: BIOS 101, 102 and MATH 112, 113 or equivalent	MJ	●	●		●				
CHEM 102 - General Chemistry II	5	Prereq: CHEM 101 with a C or better	MJ	●	●		●				
MATH 231 - Discrete Mathematics II OR MATH 222 - Calculus and Analytic Geometry II	3 OR 5	Prereq: MATH 112 OR MATH 221	MJ	●	●		●				

Total Credits: 16-18

First Year Credit Total 33-35

WINTERIM YEAR 1 - OPTIONAL: Consult with your advisor whether winterim is appropriate for you in your first year.

SUMMER YEAR 1 - OPTIONAL: Enrollment in Summer courses is recommended for students who end their first year with less than 30 credit hours.

SK= Skills Requirement, MJ = Major Requirement, GE = General Education Requirement, NS = Natural Science Requirement

Second Year

Semester 1											
Course	Credits	Course Notes	Category	Major GPA	Fall	Winter	Spring	Summer	Min. Grade	Grade	Complete
BIOS 260 - General Genetics	4	Prereq: BIOS 101, 102; 210 or concurrent registration and CHEM 102	MJ	●	●		●				
CHEM 321 - Organic Chemistry I	4	Prereq: CHEM 102 or 114	MJ	●	●		●				
Gen Ed (HU): Humanities & Fine Arts	3		GE		●	●	●	●			
Gen Ed (SS): Social & Behavioral Science	3	Select a course that meets Diversity Requirement	GE/DV		●	●	●	●			

Total Credits: 14

Semester 2											
BIOS 301 - Cell Biology	3	Prereq: BIOS 260 and CHEM 322 or consent of instructor	MJ	●			●				
BIOS 309 - Molecular Biology	3	Prereq: BIOS 260 and CHEM 322 or consent of instructor	MJ	●			●				
CHEM 322 - Organic Chemistry II	4	Prereq: CHEM 321	MJ	●	●		●				
Gen Ed (HU): Humanities & Fine Arts	3	Select a course that meets DV Requirement	GE		●	●	●	●			

Total Credits: 13

Second Year Credit Total 27

WINTERIM YEAR 2 - OPTIONAL: Enrollment in Winterim courses is strongly recommended for students who have accumulated less than 45 credits.
 SUMMER YEAR 2 - OPTIONAL: Enrollment in Summer courses is recommended for students who end their second year with less than 60 credit hours.

GE = General Education Requirement, MJ = Major Requirement, SS = Social and Behavioral Sciences Requirement,
 HU = Humanities and Fine Arts Requirement, DV = Diversity Requirement

Third Year

Semester 1											
Course	Credits	Course Notes	Category	Major GPA	Fall	Winter	Spring	Summer	Min. Grade	Grade	Complete
BIOS 453 - Molecular Biology and Bioinformatics of Nucleic Acids	4	Prereq: BIOS 260, 309 and consent of instructor	MJ	●	●						
PHYS 105 - College Physics I (NS)	5	Prereq: MATH 113, 114 or equivalent	MJ/ GE	●	●						
Gen Ed (SS): Social & Behavioral Science	3		GE		●	●	●	●			
XXXX - General Elective	3		EL		●	●	●	●			

Total Credits: 15

Semester 2											
BIOS 455 - Protein Biochemistry and Bioinformatics	4	Prereq: BIOS 260, 309 and consent of instructor	MJ	●			●				
BIOS 300+ - BIOS 300 or 400 Level Elective	3	Excluding BIOS 435, 495, or 499	MJ	●	●		●				
PHYS 106 - College Physics II	5	Prereq: PHYS 105	MJ	●			●				
XXXX - General Elective	3		EL		●	●	●	●			

Total Credits: 15

Third Year Credit Total 30

WINTERIM YEAR 3 - OPTIONAL: Enrollment in Winterim courses is strongly recommended for students who have accumulated less than 75 credits.
 SUMMER YEAR 3 - OPTIONAL: Enrollment in Summer courses is recommended for students who end their third year with less than 90 credit hours.

GE = General Education Requirement, MJ = Major Requirement, SS = Social and Behavioral Sciences Requirement,
 NS = Natural Science Requirement, EL = General Elective Requirement

Fourth Year

Semester 1											
Course	Credits	Course Notes	Category	Major GPA	Fall	Winter	Spring	Summer	Min. Grade	Grade	Complete
BIOS 489 - Molecular Biology and Bioinformatics Senior Project	1	Prereq: BIOS 453 and 455	MJ	●	●		●	●			
BIOS 499 - Independent Study	2	Prereq: Consent of instructor and dept. chair; Junior standing; Minimum GPA of 2.80 in BIOS courses recommended.	MJ	●	●		●	●			
BIOS 300+ or BIOS 400+ - BIOS 300 or 400 Level Elective	3	Excluding BIOS 435, 495, or 499	MJ	●	●		●				
Gen Ed (HU): Humanities & Fine Arts	3		GE		●	●	●	●			
Gen Ed (SS): Social & Behavioral Science	3		GE		●	●	●	●			
XXXX - General Elective	3		EL		●	●	●	●			
Total Credits: 15											
Semester 2											
BIOS 489 - Molecular Biology and Bioinformatics Senior Project	1	Prereq: BIOS 453 and 455	MJ	●	●		●	●			
BIOS 499 - Independent Study	2	Prereq: Consent of instructor and dept. chair; Junior standing; Minimum GPA of 2.80 in BIOS courses recommended.	MJ	●	●		●	●			
BIOS 300+ or BIOS 400+ - BIOS 300 or 400 Level Elective	3	Excluding BIOS 435, 495, or 499	MJ	●	●		●				
Gen Ed (HU): Humanities & Fine Arts	3		GE		●	●	●	●			
Gen Ed (SS): Social & Behavioral Science	3		GE		●	●	●	●			
XXXX - General Elective	3		EL		●	●	●	●			
Total Credits: 15											
Fourth Year Credit Total 30											

WINTERIM YEAR 4 - OPTIONAL: Enrollment in Winterim courses is strongly recommended for students who have accumulated less than 105 credits.
 SUMMER YEAR 4 - OPTIONAL: Enrollment in Summer courses is recommended for students who end their fourth year with less than 120 credit hours.

GE = General Education Requirement, MJ = Major Requirement, SS = Social and Behavioral Sciences Requirement,
 HU = Humanities and Fine Arts Requirement, EL = General Elective Requirement

Milestone Checklist

Year 1:	
Complete BIOS 101, 102, 210 and CHEM 102.	
Review DARS and consult with your advisor every semester.	
Declare major by submitting a plan declaration form if ACT score is 25 or above.	
Create a CareerLocker account and create a resume using Resume Module.	
Year 2	
Complete BIOS 260 and 309 with at least a B or better.	
Declare major by submitting a plan declaration form upon completion of BIOS 260 and attaining a 2.75 cumulative GPA.	
Complete all 300 level required core courses.	
Review DARS and consult with your advisor every semester.	
Register for RangerTrak and create a career profile, shadow a molecular biology or bioinformatics professional.	
Year 3:	
Complete BIOS 453 and 455.	
Maintain at least a 2.80 in biology courses.	
Identify senior year independent study projects	
Review DARS and consult with your advisor every semester.	
Join LinkedIn, Explore internships and graduate school options.	
Submit Graduation Application.	
Year 4:	
Complete general education requirements including diversity requirement.	
Complete all major requirements.	
Review DARS and consult with your advisor every semester.	
Update RangerTrak profile and resume, develop a job search strategy and attend Senior Send Off.	

Graduation Requirements Summary:

Minimum Total Hours: 120 credits

Minimum Upper-Division Hours: 36 credits

Minimum Major hours: 80-82 credits

Minimum Major GPA: 2.50

Minimum Overall GPA: 2.0