

**CURRICULUM SUMMARY FOR THE BACHELOR OF SCIENCE IN
BIOLOGY
GIS (GEOGRAPHIC INFORMATION SYSTEMS) CERTIFICATE
TOTAL CREDITS REQUIRED:126**

CORE CURRICULUM (STANDARD)*		MAJOR (BIOLOGY)	OTHER REQUIREMENTS	MINOR REQUIREMENTS
TSU COURSES	TCCNS EQUIVALENT			
42 credits		49 credits	35 credits	0 credits
Communication:		BIOL 111 (1)	CHEM 111 (1)	
ENG 131 (3) **	ENGL 1301	BIOL 112 (1)	CHEM 112 (1)	
ENG 132 (3)	ENGL 1302	BIOL 131 (3)	CHEM 211 (1)	
Mathematics:		BIOL 132 (3)	CHEM 212 (1)	
MATH 133 (3)	MATH 1314	BIOL 211 (1)	CHEM 231 (3)	
Life and physical sciences:		BIOL 212 (1)	CHEM 232 (3)	
CHEM 131 (3)	CHEM 1311	BIOL 231 (3)	MATH 136 (3)	
CHEM 132 (3)	CHEM 1312	BIOL 232 (3)	MATH 241 (4)	
Language, philosophy, and culture:		BIOL 338 (3)	PHYS 213 (1)	
ENG 230 or ENG 231 or ENG 235 or ENG 244 (3)		BIOL 340 (3)	PHYS 214 (1)	
Creative arts:		BIOL 341 (4)	PHYS 237 (3)	
MUSI 239 (3), THEA 130 (3), ART 135 (3), ART 137 (3) or ART 139 (3)		BIOL 347 (4)	PHYS 238 (3)	
American history:		BIOL 401 (3)	FS 102 (1)	
HIST 231 (3)	HIST 1301	BIOL 443 (4)		
HIST 232 (3)	HIST 1302	BIOL 450 (3)	3 GIS (Geographic Information Systems) Certificate Courses	
Government/political science:		BIOL 454 (3)	ES 441 (3)	
POLS 235 (3)	GOVT 2305	BIOL 460 (3)	ES 442 (3)	
POLS 236 (3)	GOVT 2306		ES 443 (3)	
Social and behavioral sciences:				
PSY 131 (3), SOC 157 (3), or SOC 158 (3)	PSY 2301, SOCI 1301, or SOCI 1306	ALL COURSES LISTED ABOVE ARE REQUIRED – NO SUBSTITUTIONS		
Institutional Options:				
SC 135 or SC 136 (3)	SPCH 1321 or SPCH 1315	Plus 3 Upper Level BIOL credits selected from the following:		
CS 116 (3)	COSC 1301	BIOL 300 (1), BIOL 332 (3), BIOL 334 (3), BIOL 343 (3), BIOL 344 (4), BIOL 345 (1), BIOL 348 (4), BIOL 349 (3), BIOL 431 (3), BIOL 434 (3), BIOL 435 (3), BIOL 438 (3), BIOL 439 (3), BIOL 441 (4), BIOL 446 (1), BIOL 447 (3), BIOL 448 (3), BIOL 451 (4), BIOL 452 (3), BIOL 461 (3)		

* Students should be advised by a major advisor prior to registering for any credit, particularly any core curriculum credit as listed.

** (N) represents the number of course credits.

**BACHELOR OF SCIENCE IN
BIOLOGY
GIS (GEOGRAPHIC INFORMATION SYSTEMS) CERTIFICATE
TOTAL CREDITS: 126**

First Year	FIRST SEMESTER		SECOND SEMESTER	
	BIOL 131 Biological Science I Lec.	3	BIOL 132 Biological Science II Lec.	3
	BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
	CHEM 131 Chemistry I Lec.	3	CHEM 132 Chemistry II Lec.	3
	CHEM 111 Chemistry I Lab	1	CHEM 112 Chemistry II Lab	1
	ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
	MATH 133 College Algebra	3	MATH 136 Precalculus	3
	SC 135 OR 136 Business and Professional Communication or Public Address	3	MUSI 239 (3), or THEA 130 (3) or ART 135 (3), ART 137 (3) or ART 139 (3)	3
	FS 102 – Freshman Seminar	1		
	18 Hrs		17 Hrs	

Second Year	THIRD SEMESTER		FOURTH SEMESTER	
	BIOL 231 Cell Biology Lec.	3	BIOL 232 Developmental Biology	3
	BIOL 211 Cell Biology Lab	1	BIOL 212 Developmental Biology Lab	1
	CHEM 231 Organic Chemistry I Lec.	3	CHEM 232 Organic Chemistry II Lec.	3
	CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II Lab	1
	ENG 230 or ENG 231 or ENG 235 or ENG 244	3	CS 116 Computer Science I Lecture	3
	MATH 241 Calculus and Analytic Geometry I	4	HIST 232 Social & Political History of the United States since 1877	3
	HIST 231 Social & Political History of the United States to 1877	3		
	18 Hrs		14 Hrs	

Third Year	FIFTH SEMESTER		SIXTH SEMESTER	
	BIOL 338 Genetics	3	BIOL 347 Microbiology	4
	BIOL 340 Biochemistry of Biological Cmpd	3	PHYS 214 College Physics Lab II	1
	BIOL 341 Organismic Biology	4	PHYS 238 College Physics II	3
	PHYS 213 College Physics Lab I	1	POLS 236 - American Political System III	3
	PHYS 237 College Physics I	3	PSY 131 or SOC 157 or SOC 158 Intro to Psychology or Sociology or Contemporary Social Issues	3
	POLS 235 - American Political Systems I	3	ES 441 Principles and Applications of GIS	3
	17 Hrs		17 Hrs	

Fourth Year	SEVENTH SEMESTER		EIGHTH SEMESTER	
	BIOL 443 Molecular Biology	4	BIOL 450 Molecular Genetics	3
	BIOL 460 Biostatistics	3	BIOL 454 Immunology	3
	ES 442 Geospatial Ecology	3	BIOL 401 – CAPSTONE COURSE	3
	BIOL ELECTIVES	3	ES 443 Remote Sensing and Image Interpretation	3
		13 Hrs		12 Hrs

* Students should be advised by a major advisor prior to registering for any credit, particularly any core curriculum credit as listed.

** (N) represents the number of course credits.