

## B.S. Biomedical Sciences: 80 credits in Major

Department of Biological Sciences: Phone 320-308-2039 or [biology@stcloudstate.edu](mailto:biology@stcloudstate.edu)

### Biomedical Sciences Major Advisors

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First Semester	Second Semester
<sup>1</sup> Biology 152 (4cr) or 151 (4cr) <sup>2</sup> Chemistry 210(4cr) <sup>3</sup> Math 112 (3cr)  Liberal Education (3cr)  <b>Total semester credits=14</b>	<sup>1</sup> Biology 151 (4cr) or 152 (4cr) <sup>2</sup> Chemistry 211(4cr) <sup>3</sup> Statistics 239 (3cr) <b>AND</b> Biology 339 (1cr)  Liberal Education (3cr)  <b>Total semester credits=15</b>
Third Semester	Fourth Semester
Biology 262 (4cr) Chemistry 310 (5cr) Physics 231 (4cr)  Liberal Education or Biomedical Science Elective (3 or 4cr)  <b>Total semester credits=16 to 17</b>	Biology 360 (4cr) Chemistry 311 (4cr) Physics 232 (4cr)  Liberal Education or Biomedical Science Elective (6 or 7cr)  <b>Total semester credits=14 to 15</b>
Fifth Semester	Sixth Semester
Biology 362 (4cr) Chemistry 480 (4cr) <sup>4</sup> Biomedical Science Elective (3 or 4cr)  Biomedical Science Elective and/or Liberal Education (3 to 4cr)  <b>Total Semester Credits=14 to 16</b>	Biomedical Science Elective (3 or 4cr) Biomedical Science Elective (3 or 4cr) Biomedical Science Elective (3 or 4cr)  Liberal Education (3cr)  <b>Total Semester Credits=12 to 15</b>
Seventh Semester	Eighth Semester
Biomedical Science Elective (3 or 4cr) Biomedical Science Elective (3 or 4cr) Biomedical Science Elective (3 or 4cr)  Liberal Education (3cr)  <b>Total Semester Credits=12 to 15</b>	<sup>5</sup> Capstone Biology 494 (4cr) Biomedical Science Elective (3 or 4cr) Biomedical Science Elective (3 or 4cr)  Liberal Education (3cr)  <b>Total Semester Credits=13 to 16</b>

Each semester it is recommended that you enroll in approximately 15 credits.

### Notes:

<sup>1</sup>Biology 151 and 152 may be taken in any order, i.e., 151 is **not** a prerequisite for 152. Both courses require college level math placement (i.e., eligibility for MATH 193.)

<sup>2</sup>CHEM 210 prerequisites are completion of CHEM 160 or an ACT math sub score of 22 or higher; or MATH 072 or higher. Students without high school chemistry with the math requirements for CHEM 210 are strongly urged to take CHEM 160. Refer to:

<https://www.stcloudstate.edu/chemistry/programs/placement.aspx>

<sup>3</sup>LEP Goal 4. To determine your readiness for Mathematics contact the Math Department at 320-308-3001 or refer to:

<https://www.stcloudstate.edu/mathstat/placement/default.aspx> The Mathematics department provides a Math placement exam or ACT score which is required before enrolling in a Math/Stats class.

<sup>4</sup>Contact your Biology advisor for approved Biomedical Science Electives, 23 credits are required.

<sup>5</sup>Capstone may be taken either semester senior year.

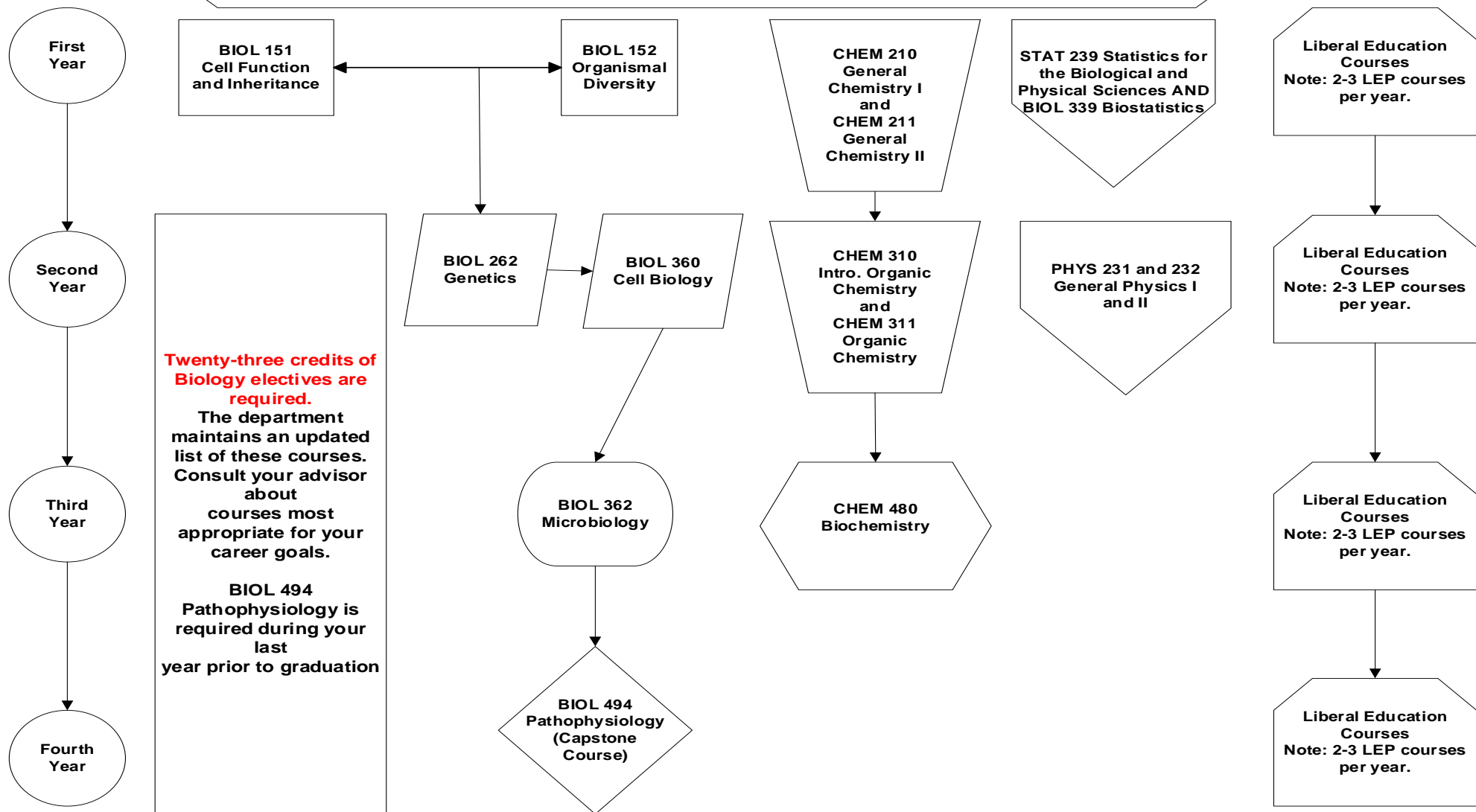
SCSU requires a minimum of 1) 120 semester credits to earn a Bachelor's degree, 2) 40 of these credits must be at the 300 or 400-level. A minimum of 40 Liberal Education credits are required at 300 or 400-level for graduation covering 10 goal areas. Required Biomedical Science courses will cover Goals 3, 4, and 10. Students must complete 3 Diversity courses from 3 different rubrics or academic areas. It is strongly recommended that 1 Diversity course be an approved Racial Issues course. It is essential to see your biology advisor during the first semester you are enrolled in BIOL courses. Contact Biology Department after February 1<sup>st</sup> to inquire about expected summer courses. Biology Department can be contacted for specific course offerings at 320-308-2039.

Updated Sept 2019

# B.S. — Biomedical Sciences (80 credits)

*Most courses have pre-requisites. See SCSU Undergraduate bulletin <https://catalog.stcloudstate.edu>.*

Math placement determines biol/chem/physics placement  
Recommend at least MATH112 College Algebra



Updated: 6/18

Biomedical Sciences Program

Dept	Course #	Course Title	Online	Cr.	Pre-requisite	Required or Elective	Done	Need
BIOL	151	Cell Function & Inheritance		4	Ready for 100 level Math	R		
BIOL	152	Organismal Diversity	Option	4	Ready for 100 level Math	R		
BIOL	262	Genetics		4	151, CHEM 210	R		
BIOL	360	Cell Biology		4	262, MATH 112 or STAT 193	R		
BIOL	362	Microbiology		4	360	R		
BIOL	494	Pathophysiology (capstone)		4	Capstone	R		

**Supporting Courses for Biomedical Sciences Program**

CHEM	210	General Chemistry 1		4	ACT Math 23 or Math 072	R		
CHEM	211	General Chemistry 2		4	CHEM 210	R		
CHEM	310	Organic Chemistry 1		5	CHEM 211	R		
CHEM	311	Organic Chemistry 2		4	CHEM 310	R		
CHEM	480	Biochemistry 1		4	CHEM 311	R		
PHYS	231	General Physics I		4	MATH 112	R		
PHYS	232	General Physics II		4	PHYS 231	R		
STAT	239	Statistics for the Biological / Physical Sciences		3		R		
BIOL	339	Statistical Design		1		R		

**The following is a list of courses students may select from to complete 23 credits of Biology Electives**

BIOL	266	Medical Terminology	Option	2		E		
BIOL	318	Comparative Vertebrate Anatomy		3	151, 152			
BIOL	361	Emerging Infectious Diseases	Only	3	151	E		
BIOL	364	Histology	Option	3	151	E		
BIOL	366	Human Anatomy		4	151	E		
BIOL	367	Introductory Pharmacology	Option	3	MATH 112 CHEM 151	E		
BIOL	444	Biology Internship		1-16	BP of Instructor (Max 6)	Max of 8 Cr total 4 max in 444		
BIOL	450	Readings in Biology (Topical)	Only	1-3	BP of Instructor (Max 6)			
BIOL	451	Undergraduate Research		1-4	BP of Instructor (Max 6)			
BIOL	453-553	Seminar in Biology (Topical)		1-3	BP of Instructor (Max 4)			
BIOL	456-556	Biological Evolution		3	262	E		
BIOL	457-557	History and Philosophy of Biology		3	Jr./Sr. Status	E		
BIOL	460-460	General Parasitology	Option	4	151, 152	E		
BIOL	462-562	Medical Microbiology		4	362	E		
BIOL	464-564	Hematology		3	151	E		
BIOL	466-566	Microscopy and Image Analysis		2	151	E		
BIOL	468-568	Advanced Animal Cell Culture Techniques		4	362	E		
BIOL	472-572	Virology	Option	3	362	E		
BIOL	474-574	Neurobiology		3	360	E		
BIOL	476-576	Developmental Biology		4	360	E		
BIOL	477-577	Advanced Anatomy		3	366 or 202/204 & BPO	E		
BIOL	478-578	Human Physiology		4	360, 366	E		
BIOL	480-580	Human Endocrinology & Reproduction		3	360	E		
BIOL	482-582	Advanced Protein Techniques		4	360, CHEM 311	E		
BIOL	483-583	Histological Techniques		3	364	E		
BIOL	484-584	Advanced DNA Techniques		4	362, CHEM 480 Sr. Status	E		
BIOL	486-586	Immunology		4	360	E		

## Liberal Education Program for Biomedical Sciences Program

GOAL	DEPT.	COURSE #	COURSE TITLE	CR	DONE	NEED
Goal 1 (2)	ENGL	191	Intro to Rhetorical & Analytical Writing	4		
Communication	SPC	192	Intro to Speech Communication	3		
Goal 2 (1)	PHIL	194	Critical Reasoning	3		
Critical Thinking						
Goal 3 (2)	BIOL	152	Organismal Diversity	4		
Natural Sciences	CHEM	210	General Chemistry I	4		
	CHEM	211	General Chemistry II	4		
	PHYS	231	General Physics I	4		
	PHYS	232	General Physics II	4		
Goal 4 (1)	MATH	112	College Algebra	3		
Math/Quant	STAT	239	Statistics for the Biological and Physical Sciences AND BIOL 339 Statistical Design	4		
	MATH	211	Survey of Calculus – for pre-med	3		
Goal 5 (2)	PSYCH	240	Developmental Psychology – for clinical professions	3		
Hist./Soc. Science				3		
Goal 6 (2)						
Humanities & Arts						
Goal 7 (1)						
Human Diversity						
Goal 8 (1)						
Global						
Goal 9 (1)						
Ethical/Civic						
Goal 10(1)	BIOL	152	Organismal Diversity	4		
Environment						
			Must total 40+ credits			
	Diversity					
	Diversity					
	Diversity					