



2026-2027

COMPUTATIONAL SCIENCE MAJOR, B.A.

Biology & Chemistry Department; Shaw School of Sciences

Computational science is a multi-disciplinary field that includes elements of computer science, applied mathematics, and the traditional scientific disciplines of biology, chemistry and/or physics. CSE focuses on the integration of information and methods from each of these disciplines.

Students must complete all Foundations requirements and major requirements, as well as any additional General Electives needed to reach the minimum of 124 total credits required for a Bachelor's degree.

MAJOR REQUIREMENTS (61-72)

(48 Core + 13-24 Concentration)

__ 4	CSC	121	Computer Programming I	__ Lab
__ 4	CSC	122	Computer Programming II	__ Lab
__ 4	MAT	181	Calculus I	__ Lab
__ 4	MAT	182	Calculus II	__ Lab
__ 4	MAT	183	Calculus III	__ Lab
__ 3	MAT	252	Differential Equations	
__ 3	MAT	271	Linear Algebra	
__ 3	MAT	350	Mathematical Modeling	
__ 3	MAT	442	Numerical Analysis	
__ 5	PHY	211	Gen Physics I	
			__ Lab __ Recitation	
__ 5	PHY	212	Gen Physics II	
			__ Lab __ Recitation	
__ 3	PHY	361	Computational Science	
__ 3	PHY	461	Computational Neuroscience	

CPSC – CHEMISTRY & PHYSICS (21-23)

__ 3	CHE	121	Gen College Chemistry I	
__ 3	CHE	122	Gen College Chemistry II	
__ 1	CHE	123	Gen College Chemistry Lab I	
__ 1	CHE	124	Gen College Chemistry Lab II	
__ 4	CHE	421	Physical Chemistry I	__ Lab
__ 3	CHE	422	Physical Chemistry II	__ Lab

Choose one Chemistry course* 200 or higher:

__ 3-4* CHE _____
*may be 4 credits if chosen course has a lab

Choose one Chemistry course* 300 or higher:

__ 3-4* CHE _____
*may be 4 credits if chosen course has a lab

REQUIRED CONCENTRATION (choose one):

CPSB – BIOLOGY (24)

__ 3	BIO	201	General Biology I	
__ 3	BIO	202	General Biology II	
__ 1	BIO	203	General Biology Lab I	
__ 1	BIO	204	General Biology Lab II	
__ 4	CHE	421	Physical Chemistry I	__ Lab

Choose two Biology courses w/labs 200 or higher:

__ 4 BIO _____
__ 4 BIO _____

Choose one Biology course w/lab 300 or higher:

__ 4 BIO _____

CPSPM – MATHEMATICS (13)

__ 3	MAT	241	Introduction to Proofs	
__ 3	MAT	281	Probability	
__ 3	MAT	471	Abstract Algebra	
__ 1	MAT	475	Senior Seminar	
__ 3	MAT	482	Complex Analysis	

Plus FOUNDATIONS REQUIREMENTS (49)

(3 credits Math and 4 credits Science satisfied by required major courses.)

Plus GENERAL ELECTIVES needed to reach minimum 124 credits (3-14)