



2022-2023

COMPUTATIONAL SCIENCE MAJOR, B.A.

Science & Health Department; School of Science, Health & Mathematics

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.

To graduate must complete all major requirements, foundational requirements, and additional electives needed for 124 hour minimum degree requirement.

MAJOR REQUIREMENTS (61-72)

(48 Core + 13-24 Concentration)

__ 4	CSC	121	Data Science I	__ Lab
__ 4	CSC	122	Data Science II	__ Lab
__ 4	MAT	181	Calculus I	__ Lab
__ 4	MAT	182	Calculus II	__ Lab
__ 4	MAT	183	Calculus III	__ Lab
__ 3	MAT	252	Diff Equations/Modeling	
__ 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 _____

CPSM – MATHEMATICS (13)

__ 3	MAT	241	Logic & Sets
__ 3	MAT	281	Probability
__ 3	MAT	471	Abstract Algebra
__ 1	MAT	475	Senior Seminar
__ 3	MAT	482	Complex Analysis

PLUS FOUNDATIONAL COURSE REQUIREMENTS (49)

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

Plus electives needed for the 124 hour degree requirement (3-14, depending on Concentration)