COMPUTATIONAL SCIENCE MINOR - CHEMISTRY (MATHEMATICS AND COMPUTER SCIENCE)

A minor in Computational Science is offered to those who wish to combine their knowledge of Biology, Chemistry, Physics or Psychology with Mathematics and Computer Science. This minor allows students to have the skills to work in cross disciplinary teams to solve challenging scientific problems. This minor is intended for students majoring in Biology, Chemistry, Computer Science, Mathematics, Physics or Psychology.

Core Courses for Chemistry Emphasis Chemistry Major

Code	Title	Units		
Lower-Division Requirements				
CHE 1052	General Chemistry I (FE)	5		
and CHE 1052L	and General Chemistry I Lab (FE)			
CHE 1053	General Chemistry II	4		
and CHE 1053L	and General Chemistry II Lab			
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3		
MTH 1064	Calculus I (FE)	4		
and MTH 1064L	and Calculus I Lab (FE)			
Upper-Division Requirements				
CSC 3002	UNIX and Python Scripting for Computational Science	2		
CSC 3011	Machine Learning and Multivariate Modeling in R	1		
or CSC 3031	Data Visualization and Communication with R			
Project				
Choose at least th	ree (3) units from the following:	3		
CSC 4133	Service Learning in Computer Science			
HON 4098 and HON 4099	Honors Project I and Honors Project II			
MTH 4133	Service Learning in Mathematics			
Chemistry Major -	Required Courses			
CHE 2013	Analytical Chemistry	3		
CHE 3025	Physical Chemistry I	4		
and CHE 3025L	and Physical Chemistry I Lab			
CSC 3022	Data Management for Computational Science	2		
MTH 3063	Calculus Based Statistics with R	3		
or MTH 3083	Mathematical Probability and Statistics			
Total Units		34		
Computer Sci	ence Majors			

Computer Science Majors

Code	Title	Units
Lower-Division R	equirements	
CHE 1052 and CHE 1052L	General Chemistry I (FE) and General Chemistry I Lab (FE)	5
CHE 1053 and CHE 1053L	General Chemistry II and General Chemistry II Lab	4

Honors Project I and Honors Project II Service Learning in Mathematics Example Majors - Required Courses Data Base Systems and Web Integration Calculus Based Statistics with R Mathematical Probability and Statistics	4 3
e Majors - Required Courses Data Base Systems and Web Integration	-
and Honors Project II Service Learning in Mathematics See Majors - Required Courses	4
and Honors Project II Service Learning in Mathematics	
and Honors Project II	
Service Learning in Computer Science	
hree (3) units from the following:	3
Data Visualization and Communication with R	
Machine Learning and Multivariate Modeling in R	1
UNIX and Python Scripting for Computational Science	2
equirements	
calculus I (FE) and Calculus I Lab (FE)	4
, , , ,	
Introduction to Computer Programming	3
	and Introduction to Computer Programming Lab Calculus I (FE) and Calculus I Lab (FE) Requirements UNIX and Python Scripting for Computational Science Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R

Mathematics Majors

Code	Title	Units	
Lower-Division Re	quirements		
CHE 1052 and CHE 1052L	General Chemistry I (FE) and General Chemistry I Lab (FE)	5	
CHE 1053 and CHE 1053L	General Chemistry II and General Chemistry II Lab	4	
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3	
MTH 1064 and MTH 1064L	Calculus I (FE) and Calculus I Lab (FE)	4	
Upper-Division Re	quirements		
CSC 3002	UNIX and Python Scripting for Computational Science	2	
CSC 3011	Machine Learning and Multivariate Modeling in R	1	
or CSC 3031	Data Visualization and Communication with R		
Project			
Choose at least three (3) units from the following:			
CSC 4133	Service Learning in Computer Science		
HON 4098 and HON 4099	Honors Project I and Honors Project II		
MTH 4133	Service Learning in Mathematics		
Mathematics Majo	ors - Required Courses		
CHE 2013	Analytical Chemistry	3	
CHE 3025 and CHE 3025L	Physical Chemistry I and Physical Chemistry I Lab	4	
CSC 3022	Data Management for Computational Science	2	
MTH 3083	Mathematical Probability and Statistics	3	
Total Units		34	