

COMPUTATIONAL SCIENCE MINOR - BIOLOGY/ ENVIRONMENTAL SCIENCE (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.

Courses for Biology/Environmental Science Emphasis

Biology Major

Code	Title	Units
Lower-Division Requirements		
BIO 2011 and BIO 2011L	Ecological and Evolutionary Systems (FE) and Ecological and Evolutionary Systems Laboratory (FE)	4
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
Upper-Division Requirements		
BIO 3063 and BIO 3063L	Conservation Ecology and Conservation Ecology Laboratory	4
CSC 3002	UNIX and Python Scripting for Computational Science	2
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
Project		
Choose at least three (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	
Biology Major - Required Courses		
CSC 3022	Data Management for Computational Science	2
MTH 1044	Calculus with Applications (FE)	4
MTH 3063	Calculus Based Statistics with R	3
Total Units		26

Computer Science Majors

Code	Title	Units
Lower-Division Requirements		
BIO 2011 and BIO 2011L	Ecological and Evolutionary Systems (FE) and Ecological and Evolutionary Systems Laboratory (FE)	4
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3

Upper-Division Requirements		
BIO 3063 and BIO 3063L	Conservation Ecology and Conservation Ecology Laboratory	4
CSC 3002	UNIX and Python Scripting for Computational Science	2
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
Project		
Choose at least three (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	
Computer Science Majors - Required Courses		
ISS 4014	Data Base Systems and Web Integration	4
MTH 1064 and MTH 1064L	Calculus I (FE) and Calculus I Lab (FE)	4
MTH 3063 or MTH 3083	Calculus Based Statistics with R Mathematical Probability and Statistics	3
Total Units		28

Mathematics Majors

Code	Title	Units
Lower-Division Requirements		
BIO 2011 and BIO 2011L	Ecological and Evolutionary Systems (FE) and Ecological and Evolutionary Systems Laboratory (FE)	4
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
Upper-Division Requirements		
BIO 3063 and BIO 3063L	Conservation Ecology and Conservation Ecology Laboratory	4
CSC 3002	UNIX and Python Scripting for Computational Science	2
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
Project		
Choose at least three (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	
Mathematics Majors - Required Courses		
CSC 3022	Data Management for Computational Science	2
MTH 1064 and MTH 1064L	Calculus I (FE) and Calculus I Lab (FE)	4
MTH 3083	Mathematical Probability and Statistics	3
Total Units		26