PROFESSIONAL SCIENCE MASTER'S IN NATURAL SCIENCES, BIOLOGICAL DATA ANALYTICS SPECIALIZATION

Requirements
Effective Fall 2021

Because this program is intended to serve students with a wide range of backgrounds, each student must work with an advisor to determine an appropriate selection of courses.

First Year		Credits
BUS 500	Foundations for Business Impact	2
DSCI 510	Linux as a Computational Platform	1
DSCI 511	Genomics Data Analysis in Python	2
NSCI 693C	Graduate Seminar: Biological Data Analytics	1
Select one course from the following:		1-3
BC 601	Responsible Conduct in Biochemistry	
BUS 505	Legal and Ethical Environment of Business	
CM 666/PHIL 666	Science and Ethics	
GRAD 544	Ethical Conduct of Research	
NSCI 575/GRAD 575	Ethical Issues in Big Data Research	
Select one course from the following:		3-4
ERHS 535	R Programming for Research	
STAR 511	Design and Data Analysis for Researchers I	
Select a minimum of 3 credits from the following:		3-4
BC 563[1]	Molecular Genetics	
CM 505	Nucleic Acids for Non-Life Scientists	
CM 506	Protein Basics for NonBiologists	
MIP 543	RNA Biology	
	Total Credits	**13-17**
Second Year		
DSCI 512	RNA-Sequencing Data Analysis	1
MGT 340	Fundamentals of Entrepreneurship	3
NSCI 693C	Graduate Seminar: Biological Data Analytics	1
NSCI 696F	Group Study: Biological Data Analytics Project Proposal	6
Select one course from the following:		3-4
BC 563[1]	Molecular Genetics	
MIP 543	RNA Biology	
Select one course from the following:		3-4
ERHS 544/STAT 544	Biostatistical Methods for Quantitative Data	
STAR 512	Design and Data Analysis for Researchers II	
Electives (select from the list below with approval of advisor)[2]		4-10
	Total Credits	**21-29**
	Program Total Credits:	**40**

A minimum of 40 credits are required to complete this program.

Electives

Code	Title	Credits
Math/Computational Electives:		
BC 571	Quantitative Biochemistry	
CS 548/STAT 548		
DSCI 475	Topological Data Analysis	
MATH 532	Mathematical Modeling of Large Data Sets	
Statistics Electives:		
ERHS 534	SAS and Epidemiologic Data Management	
HORT 579	Mass Spectrometry Omics-Methods and Analysis	
STAR 511	Design and Data Analysis for Researchers I	
Science Electives:		
BC 512	Principles of Macromolecular Structure	
BC 565	Molecular Regulation of Cell Function	
BC 663	Gene Expression	
MIP 543	RNA Biology	
MIP 565/BZ 565	Next Generation Sequencing Platform/ Libraries	
MIP 570	Functional Genomics	
MIP 576/ BSPM 576	Bioinformatics	
Business Electives:		
MGT 430	Leadership and Social Responsibility	
MGT 450		
Communications Electives:		
GRAD 550	STEM Communication	

[1] BC 563 is generally required in either the first or second year, but may be waived if the student has sufficient prior coursework.

[2] Select enough elective credits to bring the program total to a minimum of 40 credits. Students are required to take elective courses from at least 2 of the 5 categories. Electives may be taken in the first or second year with the approval of advisor.