CMDA Major Requirements

Biological Sciences Option

MATH 1225 Calculus of a Single Variable I
MATH 1226 Calculus of a Single Variable II
CMDA 3654 Intro to Data Analytics & Visualization
CMDA 3605 Math Modeling I
CMDA 3606 Math Modeling II
CMDA 4864 CMDA Capstone Project

Integrated Path

CS 1064 Intro to Programming in Python
CS 2064 Intermediate Prog in Python
CS 2114 Software Design & Data Structures
CMDA 1634 Discovering CMDA
CMDA 2005 Integrated Quantitative Science I
CMDA 2006 Integrated Quantitative Science II
CMDA 3634 CS Foundations of CMDA
CMDA 3654 Intro Data Analytics & Visualization
CMDA 4654 Intermediate Data Analytics & ML

Traditional Path

MATH 1225 Calculus of a Single Variable I
MATH 1226 Calculus of a Single Variable II
MATH 2114 Intro to Linear Algebra
MATH 2214 Intro to Differential Eqns
MATH 2204 Intro to Multivariable Calc
STAT 3005 Stat Methods I
STAT 3006 Stat Methods II
STAT 3104 Probability and Distributions

+ 3 elective courses
(2 from the BIOL/SYSB list, 1 from the CMDA list)
At most 1 Undergraduate Research course may be counted.

BIOL/SYSB electives include the following:
- SYSB 3035 Systems Biology of Genes and Proteins (4 credits)
- SYSB 3036 Systems Biology of Genes and Proteins (4 credits)
- SYSB 3114 Network Dynamics and Cell Physiology (4 credits)
- SYSB 3116 Network Dynamics and Cell Physiology (4 credits)
- BIOL 4134 Evolutionary Genetics
- BIOL 4564 Infectious Disease Ecology
- BIOL 4114 Global Change Ecology
- BIOL 4004 Freshwater Ecology (4 credits)
- BIOL 4624 Microbial Genetics
- BIOL 4664 Virology
- BIOL 4874 Cancer Biology

CMDA electives include the following:
- CMDA 4664 Computational Intensive Stochastic Modeling
- CS 3824 Intro to Computational Biology and Bioinformatics
- MATH 4454 Applied Mathematical Modeling
- STAT 4364 Introduction to Statistical Genomics
- CMDA 4004 Integrated Quantitative Science I
- CMDA 4006 Integrated Quantitative Science II
- CMDA 4664 Computational Intensive Stochastic Modeling

CMDA 4864 (CMDA Capstone) requires the prerequisite of CMDA 3605, 3634, and 3654. Students are strongly encouraged to also take CMDA 3606 and 4654 before the CMDA Capstone.

Choose two of five

- BIOL 2004 Genetics
- BIOL 2134 Cell Function & Differentiation
- BIOL 2604 General Microbiology
- BIOL 2704 Evolutionary Biology
- BIOL 2804 Ecology

https://www.science.vt.edu/academics/programs/cmda.html