May 11, 2022

This is an enthusastic letter of recommendation for **Donovan Cates** who is applying for a summer intern position with the UVA Biocomplexity Institute.

Donovan is just finishing his 3rd year as a UVA undergraduate, majoring in mathematics, and following our department's graduate-preparatory track. This past year he was in two courses I taught – Math 4770 General Topology in fall 2021, and then Math 4330 Calculus on Manifolds this spring. I view these courses as two of our most sophisticated: the topology course has students getting much practice in clear writing of mathematical arguments, and the calculus on manifolds course discusses the proofs and fine points of the Implicit Function Theorem (justifying the use of Lagrange Multipliers), Change of Variables in multiple integrals, and finally concepts like differential forms, underlying the generalized Stokes Theorem. (An exam problem from the first course was to show that the Cantor set is homeomorphic to a countable infinite product of two points; an exam problem from the second course was to compute the n-dimensional volume of the n-dimensional ball of radius 1.)

Donovan got an A in both courses, with his work in both courses always very clear and accurate, and pleasant to read. He is part of a cohort of strong math majors among the best I have seen in my 35 years at UVA, with a profile similar to many of our students who have gone on to strong mathematics graduate programs or similar.

I suspect that, in an intern position at your Institute, he will be an eager participant and quick learner of new concepts, and great contributor to whatever projects he will be working on. He seems to be a very nice guy too!

Please let me know if you need any more information about Donovan.

Sincerely,

Nicholas Kuhn
Professor of Mathematics
University of Virginia