COLLEGE OF SCIENCE
MATHEMATICS
VIRGINIA TECH

APPLIED DISCRETE OPTION
B.S. MATHEMATICS

SAMPLE PROGRAM OF STUDY – MATHEMATICS: APPLIED DISCRETE OPTION

There is considerable flexibility in designing a program of study. The example given below is not likely to fit every situation and is provided for information as you develop your own plan with your academic advisor. All course requirements for the B.S. Mathematics Applied Discrete Option are included in this sample plan. See the 2025-2026 Academic Catalog for details.

Fall Semester Year 1			Credits
MATH	1225	Calculus of a Single Variable (Pathway 5f)	4
MATH	1004	Discovering Mathematics I (fall only) [1]	1
CS	1114	Intro to Software Design (coreq: MATH 1225) [2]	3
ENGL	1105	First-Year Writing (Pathway 1f)	3
		Pathway 2	3
		Pathway 3	3
			17

Spring Semester Year 1			Credits
MATH	1226	Calculus of a Single Variable (Pathway 5f)	4
MATH	1044	Discovering Mathematics II (spring only) [1]	2
CS	2114	Software Des & Data Structures (Pathway 6d)	3
ENGL	1106	First-Year Writing (Pathway 1f)	3
		Pathway 7 [3]	3
			15

Fall Semester Year 2			Credits
MATH	2114	Intro to Linear Algebra	3
MATH	2204	Intro to Multivariable Calculus	3
CS	2505	Computer Organization	3
		Pathway 3	3
		Pathway 4 (BIOL, CHEM, GEOS, ISC, NEUR PHYS, or PSYC)	3
			15

Spring Semester Year 2			Credits
MATH	2214	Intro to Differential Equations (Pathway 5a)	3
MATH	3034	Intro to Proofs (prereq: C in MATH 2114)	3
CS	3114	Data Structures and Algorithms	3
		Pathway 2	3
		Pathway 4 (BIOL, CHEM, GEOS, ISC, NEUR PHYS, or PSYC)	3
			15

Fall Semester Year 3			Credits
MATH	3124	Modern Algebra	3
MATH	3214	Calculus of Several Variables	3
MATH	3134	Applied Combinatorics & Graph Theory	3
STAT	4XXX	STAT 4705, STAT 4714, or STAT 4105	3
		Free Elective	3
			15

Spring Semester Year 3			Credits
MATH	3144	Linear Algebra I	3
MATH	3224	Advanced Calculus	3
CS	41XX	CS 4104, CS 4114, or CS 4124	3
		Free Elective	3
		Free Elective	3
			15

Fall Semester Year 4			Credits
MATH	4XXX	4000-Level Applied Discrete Math [4]	3
MATH	4XXX	4000-Level Math Elective [5]	3
		Pathway 1a	3
		Free Elective	3
		Free Elective	3
			15

Spring Semester Year 4			Credits
MATH	4XXX	4000-Level Applied Discrete Math [4]	3
MATH	4XXX	4000-Level Math Elective [5]	3
		Pathway 6a	3
		Free Elective	3
		Free Elective	1
			13

[1] MATH 1004 and MATH 1044 are strongly recommended free electives for first-year math majors.

[2] CS 1114 is the recommended prerequisite for CS 2114. CS 2064 is an acceptable substitution for CS 1114. Note that CS 2064 has a prerequisite of CS 1064.

[3] The course selected in Pathway 7 may double-count with one other Pathway Concept if the selected course is also in another Pathway Concept.

[4] Select two of: {4124 (fall only), 4134 (spring only), 4144 (spring only), 4175, 4176, 5114 (spring only), 5454 (fall only), 5464 (spring only)}. Instructor permission is required for undergraduates to take a graduate-level course.

[5] Any of the 4000-level Applied Discrete Math course options that were not selected among the six credits of 4000-Level Applied Discrete Math can be used. At most one of {4044, 4334} is allowed. At most one {4425, 4564} is allowed. The following CANNOT be used: {4574, 4625, 4626, 4644, 4664}. Math Undergraduate Policy & Curriculum Committee approval required to use any of {4974, 4984, 4994}.

Minimum Graduation Requirements:

Credit Hours: 120
Overall GPA: 2.0
In-Major GPA: 2.0