APPLIED COMPUTATIONAL OPTION
B.S. MATHEMATICS

COLLEGE OF SCIENCE **MATHEMATICS** VIRGINIA TECH

SAMPLE PROGRAM OF STUDY – MATHEMATICS: APPLIED COMPUTATIONAL 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 Computational Option are included in this sample plan. See the 2024-2025 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
MATH 1454	Intro Math Prog (fall only; coreq: MATH 1225)[1]	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)*	2
ENGL 1106	First-Year Writing (Pathway 1f)	3
	Pathway 2	3
	Pathway 7[2]	3
		15

Fall Semester Year 2		Credits
MATH 2114	Intro to Linear Algebra	3
MATH 2204	Intro to Multivariable Calculus	3
	Pathway 3	3
	Pathway 4 (BIOL, CHEM, GEOS, ISC, NEUR PHYS, or PSYC)	3
	Free Elective	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
	Pathway 6a	3
	Pathway 4 (BIOL, CHEM, GEOS, ISC, NEUR PHYS, or PSYC)	3
	Pathway 6d	3
		15

Submit Interdisciplinary Application of Mathematics Course Plan (IAMCP)[3]

Fall Semester Year 3		Credits
MATH 3144	Linear Algebra I	3
MATH 3214	Calculus of Several Variables	3
MATH 4445	Intro to Numerical Analysis	3
	IAMCP Course[3]	3
	Pathway 1a	3
		15

Spring Semester Year 3		Credits
MATH 3224	Advanced Calculus	3
MATH 4446	Intro to Numerical Analysis	3
	IAMCP Course[3]	3
	Free Elective	3
	Free Elective	3
		15

Fall Semester Year 4		Credits
MATH 4425	Fourier Series PDE (fall only)	3
MATH 4414	Issues in Scientific Computing[4] or Free Elective if MATH 4454 is taken	3
MATH 4XXX	4000-Level Math Elective[5]	3
	IAMCP Course[3]	3
	Free Elective	3
		15

Spring Semester Year 4		Credits
MATH 4426	Fourier Series PDE (spring only) or CMDA 4604	3
MATH 4454	Applied Mathematical Modeling (spring only)[4] or Free Elective if MATH 4414 is taken	3
MATH 4XXX	4000-Level Math Elective[5]	3
	IAMCP Course[3]	3
	Free Elective	1
		13

[1] MATH 1225 is a corequisite for MATH 1454. Discuss choice of programming course with academic advisor. Other options include: CS 1044, 1054, 1064, 1114; AOE 2074; BMES 2074; ECE 2514; ESM 2074; ME 2004

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

[3] See Undergraduate Handbook for Mathematics Majors for details.

[4] Students are required to take **only <u>one</u> of MATH 4414 or MATH 4454**. Check prerequisites for these courses carefully. Any programming course will suffice as the programming prerequisite for MATH 4454.

[5] Must be chosen from Mathematics courses numbered between 4044-4454 with the following restrictions and exceptions: MATH 3124 <u>can</u> be used. At most one of {4044, 4334} is allowed. Math Undergraduate Policy & Curriculum Committee approval required to use any of {4974, 4984, 4994}.

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

Minimum Graduation Requirements:
Credit Hours: 120
Overall GPA: 2.0
In-Major GPA: 2.0